THE FIRST TWO DECADES OF PSYCHOLOGICAL RESEARCH IN BANGLADESH

Some Selected Studies

Edited by

HAMIDA AKHTAR BEGUM

AFROZA HOSSAIN
1995

THE FIRST TWO DECADES OF PSYCHOLOGICAL RESEARCH IN BANGLADESH

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First Edition
February. 1991

Published by :
Centre for Psycho-Social Research and Training
(CPSRT)
8, Dhanmondi R/A
Road No. 12, Dhanmondi
Dhaka—1000
Bangladesh

Printed by :
Amader Bangla Press Ltd.
32/1, Azimpur Road,
Dhaka—1205 Phone : 508571

Price : Tk. 200.00 only

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To my beloved students of psychology

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PREFACE

The purpose of this book is to introduce psychological research of Bangladesh to the readers in and outside this country. It is meant for the students of psychology and its allied disciplines as well as others interested in the development of this branch of knowledge in Bangladesh. An attempt has, therefore, been made to present a sample of research articles of the local psychologists that would cover the major areas and the period which may truly be called the first two decades of psychological research in Bangladesh.

Bangladesh is a small country of the Third World with a vast population which came into being in 1971 following a war of independence. History shows that psychology had its beginning in this land as earily as 1921 when it was under the British rule in India. Psychology was introduced in the Philosophy Department of the University of Dhaka, the first university of this country. It remained in the cradle of philosophy even when this land formed the eastern wing of Pakistan in 1947. Formal recognition of this discipline came in 1956 when a separate Department of Psychology was set up in a newly established university named Rajshahi University. However, research in psychology remained neglected until the end of the *sixties*. It was after the establishment of a fulfledged Department of Psychology in the University of Dhaka in 1965, the young psychologists for the first time took initiative in publishing a journal of Psychology entitled the *Dhaka University Journal of Psychology*. The first issue of this journal came out in 1968. Four years

later, with the formation of the Bangladesh Psychological Association, another journal named the *Bangladesh Journal of Psychology* was introduced. These journals and the pressing needs of the society stimulated the psychologists to undertake research activities along with teaching they were hardpressed in all these years. In fact, empirial research in psychology marked its beginning in the early *seventies*, and the past two decades, i.e., the *seventies* and *eighties*, can truly be regarded as the first two decades of psychological research in Bangladesh.

A close look at the publications of the local psychologists over the total span of time bear testimony to this. In a survey of the articles published in the Dhaka University Studies (a major source of local research publications of all disciplines), it was found that only five articles on psychology were published until 1960. During the sixties a total number of eight articles were published in this journal and the *Dhaka University Journal of Psychology* taken together. Most of these articles, however were theoretical, in nature.

In contrast to this period, *seventies* and *eighties* were remarkably rich in research. A recent publication viz., *Bangladesh Psychological Abstracts* : 1972-1989 (H. A . Begum and E. Ahmed Eds., 1990) speaks for that. In my more recent survey of the publications of the Bangladeshi psychologists during the past two decades it was found that out of the total number of 284 psychological articles published in different journals of home and abroad , 84 were published in the *seventies* and 200 in the *eighties*. An areawise distribution of these publications of the psychologists during these two decades is shown in the following Table :

Number and Percentage of Published Articles in Different Areas of Psychology during 1970s and 1980s.

Area	1970s		1980s		Total	
	N	%	N	%	N	%
General	3	1.06	14	4.92	17	5.99
Experimental & Physiological	29	10.21	26	9.16	55	19.37
Social	18	6.34	54	19.01	72	25.35
Developmental	9	3.17	27	9.51	36	12.68
Clinical/Personality	8	2.82	29	10.21	37	13.03
Industrial/ Organizational	8	2.82	41	14.44	49	17.25
Psychological Testing & Measurement	7	2.47	5	1.76	12	4.23
Educational	2	0.70	4	1.40	6	2.10
Total =	84	29.59	200	70.41	284	100.00

It shows that publication in the area of social psychology has topped the list. It seems to have gained importance particularly in the *eighties*. Next in order are experimental, industrial/organizational, clinical/ personality, developmental, general, psychological testing and measurement, and educational fields.

A prominent correlate of the difference in the number of publications in difterent fields is the place of higher training and field of specialization of the local psychologists. Survey data shows that about 58 percent of those trained abroad went to the western countries, particularly north America (29 percent). Most of the senior researchers belong to this group. The next important place of higher studies has been India (28 percent). Most of these researchers are relatively younger in age and had received their training in the

eighties. Psychologists obtaining higher training in research (M.Phil and Ph.D) form Bangladesh constitute the lowest percentage (14 percent). From this account of higher training it may very well be understood why western psychology has been so influential in determining the trend of both teaching and research in Bangladesh. A more elaborate explanation for this may be found in one of my recent reports on psychology in Bangladesh published by the UNESCO, 1990.

Since academic psychology in Bangladesh is being developed in the hands of a few scholars, rigorous specialization in an area has never been found as it has been in the case of developed countries. A rough estimate of the specialization of university teachers in this discipline indicates that the highest percentage of teachers (30 percent) are in the area of social psychology. Next in order are industrial/organizational (20 percent), clinical (13 percent) and developmental (13, percent), psychological testing and mearurement (10 percent) and experimental (8 percent) fields. Educational psychology (6 percent) lacks most in specialization.

These facts and the needs of society explain the comparative status of different fields of research in psychology in Bangladesh. An obvious reason for the importance of social psychological research is that most of our problems of life are social in nature. Social psychological studies done so far are primarily concerned with attitudes, values, risk-taking, and social problems such as student activism, violence, drug addiction and such others. In addition, cross-cultural comparisons and methodological issues have been of interest to some researchers in this area.

Emphasis on experimental research, particularly in the *seventies*, may be attributed to the scholars' training in the western tradition. The fields of research

have primarily been perception and memory. Investigation of McCollough effect, eye movement, decay in short term and long term memory and their determining factors have been of considerable interest to these researchers. However, unlike in the western tradition, exprimental research in this country lacks intensive and continuous effort so as to make a definite contribution to any field.

It is interesting to note that industrial and organizational psychology has comprised the third most important area of research in Bangladesh which is predominently an agricultural country. An obvious reason for this is the greater number of scholars specialized in this area. Besides, the country strives for industrialization as a strategy for development and consequently considerable number of small and large industrial plants have been set up in the past few years. Job satisfaction, shift work, accidents, selection procedures and such others of applied importance have been the major cocerns of the researchers in this field.

Clinical and developmental are the most popular fields of psychology in Bangladesh. Yet, research in these areas has not made as much progress as it should have. Studies on personality, delinquency and mental retardation have occupied the major portion of clinical research. Parent-child relationslip, problems and pattern of development in childhood and adolescence constitute the major interest of the researchers in developmental psychology.

A field lacking far behind in Bangladesh is psychological testing and measurement. As psychologists in this part of the world have long been borrowing instruments from foriegn countries, especially from the west, very few original measures or tools have been developed here. Most of the researches are aware of this shortconing, yet they devote more on adaptation of tests or scales rather than developing an original

measure for their own. A reason for this practice is lack of funds available for undertaking projects for developing instruments suited to this culture. However a few original measures have been developed very recently.

As shown in the preceeding table, educational psychology is another poor area of research. The irony is that education is an area which needs maximum reform in this country. And it is only through empirical research that such reforms may be worked out.

From the foregoing accounts it appears that research in psychology has been progressing despite the fact that it is limited to only two universities with limited facilities. Although no extensive evaluative report on psychological research has yet been published, it appears from this survey that almost all of the studies have been small scale investigations with relatively smaller sample sizes and there is little continuity of research programme to generate theories in a given field. So far as methodology of these researches is concerned, predominance of survey method and extensive use of questionnaire may be regarded as the charactaristic features. Experimental method has been used on a limited scale in social research. Although psychologists in this country are mostly engaged in basic research, there is some evidence of their interest in applied research, especially in most recent time periods i.e., in the *eighties*. The number of articles that may be identified as making a contribution to national social problems is fairly substantial, once again, in the recent time periods. The contributions are mainly in terms of understanding local social problems and suggesting specific changes to local social programmes.

A major shortcoming of research in Bangladesh is the lack of adequate literature review which is visible from references cited by the researchers in their articles.

A count in this respect of a sample of articles (n=150) of the Bangladeshi psychologists shows that less than15 percent of the references were from within the last five years. Over 70 percent of them were more than ten years old and 32 Percent were twenty or more years old.

The main reason for such shortcomings in Bangladesh research is lack of funds for doing research and providing facitities for enhancing it quality. Unavailability of current psychological journals is an important aspect of such lack of facilities . Others are lack of physical facilities such as computers, technicians photocopying machines etc. The major source of finance for research projects is the University Grants Commission (UGC) which can support only the small projects incurring relatively few expenses. UGC funds are again limited. As such many of the Studies of the psychologists here in Bangladesh are self-financed.

In spite of the factors imposing limitations on research activities, psychologists in Bangladesh have expanded the domain of research with a noticeable increase in their effort in the past two decades. Although research in psychology in Bangladesh followed the western trend in the beginning as it developed in the hands of a few scholars trained in the west, it appears to have changed the course. Psychologists seem to have seen the need to develop orientation, concepts and methodology, that better match in Bangladesh culture. Research publications, particularly of the eighties, reflect a fair degree of increasing sensitivity to the local culture. In other words, some indigenization of the discipline is indicated in the recent research. Interest in interdisciplinary or collaborative research and cross-cultural comparisons of behavioural data are creeping in. This speaks for its bright future. However, the cumulative growth of a scientific discipline depends to a large extent on physical facilities and availability of resources. Addition of such input to the existing

commitment of psychologists would help accelerating the growth of research which lays foundation of this science.

At the end I would like to express my heartiest appreciation to the researchers who have been working with tremendons teaching load on the one hand and lack of facilities for research on the other. In this volume I have tried my best to include as many of them as possible by selecting their work in such a way that they cover all the major areas of reasearch in psychology during the past two decades. The areas have been broadly classified and an attempt has been made to make the number of articles roughly proportionate to the total number. But I must admit I could not accommodate sufficient number of articles to cover all the areas for various limitations. It was again financial constraint which compelled me to cut the list of articles shorter. I sincerely thank all the authors for permitting me to include their papers in this volume. Without their contribution this volume could not have been published. May I also request them to forgive errors or other shortcomings in editing which were truly unintended. Finally I wish to express my gratitude to CPSRT for publishing this book.

Before closing may I quote the following words of Professor Mir Fakhruzzaman, a pioneer of scientific psychology in Bangladesh, which should inspire and guide our future research :

"I visualize a bright future for psychologists. But at the same time I request them to undertake serious researches in different areas and devise measures for the solution of innumerable social and national problems with a solemn service to the nation." (Part of his speech delivered on the eve of opening the Department of Psychology, University of Dhaka in 1965)

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THE QUR'ANIC MODEL OF HUMAN BEHAVIOUR

Mir Fakhruz Zaman

Modern Psychology is defined as the study of behaviour. Modern psychologists have been able to study their subject matter by the application of scientific methods. Today, nobody, therefore questions the scientific status of psychology. A cursory glance at the history of psychology will convince any reader that modern psychology is a logical evolution of nineteenth century mechanistic science. The characterstic feature of modern psychology is that it is also mechanistic in its character and it emphasizes the materialistic aspects of behaviour. This materialistic approach does not satisfy all the probing minds. They pause to think whether variables other than material influence bahaviour. The Qur'anic approach to human behaviour is in order here.

The Qur'anic Approach to Human Behaviour

Al-Qur'an declares in the very beginning of Surat-ul-Baqara that "This is the Book; in it is guidance sure, without doubt, to those who fear (believe) Allah". The Qur'anic approach to human behaviour can, therefore, be undertaken by those psychologists who believe in the existence of Allah. With this precondition, psychologists may examine the Qur'anic approach to human behaviour

From *Bangladesh J. Psychol.*, 1980, Vol. 6,311-315. *Reprinted by permission of the Late author's family.*

by employing scientific methods. Some may contend that religious approach to the study of behaviour is bound to be a regressive and unscientific step. Let me hasten to add that Islam is not to be understood in the same sense in which we understand other traditional religion. Islam is a complete code of life. As such behaviour is also incorporated within this code. Moreover, Islamic or the Qur'anic approach is not unscientific. AL-Qur'an does not enjoin upon people to take things for granted. There are many verses like *"Inna fe khalq es Samawate wal ardw wakd Tila fil laile wan nahare le ayat el wulil albab"* meaning, "Verily in the creation of heaven and earth and in the change of day and night there are signs for those who are wise" which encourage people to look around and verify the existence of Allah from His creations. This surely is a rational and scientific approach. One can therefore claim that there is no clash between the Qur'anic approach and the scientific approach.

The Qur'anic Model of Human Behaviour

It is, therefore, possible to construct a model of human behaviour based on the teachings of AL-Qur'an scientifically. The task of the oriental psychologists will be to sift those injunctions of AL-Qur'an which are related to behaviour common to people of all places and times. These are to be taken as postulates of human behaviour. Propositions may be deduced from these postulates and attempts may be made to verify these propositions by empirical evidence. Let us suppose that piety in relation to human conduct is such a postulate. We may deduce the proposition that "the conduct of pious people is conducive to welfare of any society". We shall have to define the term

pious operatoinally and then we can empirically verify the proposition stated above. In accordance with the operational definition of the term pious we can randomly select two groups of people one group consisting of people who are pious and the other group comprising of people who are not pious. We can then observe the behaviour pattterns of these two groups and see for ourselves whether such behaviour patterns are conducive to the welfare of the society or not. In such a manner we can have postulates about different aspects of human behaviour. Postulates relating to a particular aspect of behaviour will constitute a sub-system. Logical combination of many such sub-systems will constitue a well-integrated system of behaviour.

Implications of the Qur'anic Approach to Human Behaviour

Western or modern psychology emphasizes the material aspect of human behaviour. Such an emphasis fails to achieve the fuller understanding of human behavior. Man is not simply matter. Materialistic approach has gone a long way in the analysis and explanation of human behaviour. But materialistic models have failed to explain certain aspects of human behaviour which do not possibly fall within the material domain. We do not ignore the material aspect of human behaviour. What we propose to do is to analyze and explain those aspects of behaviour which are on a higher plane than material aspects, These aspects of human behaviour are to be designated as spiritual. A question may be asked at this point. Is it possible to determine the influences of spiritual variables? The answer is to be given in the affirmative. It has been possible to assess the influences of cognitive variables. If

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it is possible to observe the effects of cognitive variables, it is also possible to determine the influences of spiritual variables. However, utmost care is to be taken in designing studies or experiments aimed at determining the effects of spiritual variables. First of all, precise operational definitions of such variables shall have to be given. With such definitions it will not be difficult to determine the effects of spiritual variables. Let me give an example. Let us suppose that 'zikr' (remembrance of Allah) is a spiritual variable. We intend to assess the influences of 'zikr' on one's behaviour. It is possible to make a distinction between silent 'zikr' and 'zikr' aloud. It is not also difficult to identify and operationally define these two kinds of 'zikr'. Then we can specify two concrete populations-one, which regularly engages itself in 'zikr' and the other which does not do so. Thereafter by employing simple randomized design, subjects may be selected from these two populations and a comparison may be made between these two groups in respect of some dependent variable (also operationally defined). Thus we can determine the differential effects of 'zikr' upon human behaviour. Many other injunctions of AL-Qur'an relating to human behaviour may fall under the category of spiritual variables and effects of these variables can easily be determined. We may, therefore, conclude that propositions deduced from the postulates formulated on the basis of the teachings of AL-Qur'an may be verified. For such an endevour a careful study of AL-Qur'an and AL-Hadith is a necessity. I, therefore, appeal to my colleagues to undertake a carful study of these Books and make an attempt to analyze and explain human behaviour from the Qur'anic point of view. We have borrowed a lot from the

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West; let us now make an attempt to give something to the West.

Practical Implications of the Qur'anic Approach to Human Behaviour

Western civilization has made a phenomenal stride in respect of material development. But such a development has not been able to bring about a fuller development of human existence. This is possibly due to the fact that western civillization has so far ignored the spiritual development of human beings. The Qur'anic approach to human beaviour takes into consideration both the material and spiritual dehvelopment of human existence. Such an approach will help us gain a fuller understanding of human behaviour.

One other point is to be remembered. The Qur'anic injunctions do not stop at simply understanding behaviour. The Qur'anic injunctions are to be practised. If a particular code of conduct is found to be superior to the other, then the superior code of conduct is to be followed. Man is not to be guided by his passions and impulses; if required these passions and impulses are to be controlled. Men are designated, in AL-Qru'an as *'Ashraful Mukhluqht'* (the best of Allah's creations). In order to be the best of Allah's creations men shall not be the masters of their passions and impulses, Man can rather be the masters of their passions and impulses. Men can attain this status only by following the injunctions of the Holy Qur'an which are supposed to be the best of guidance for men's conduct. Let us make a serious attempt to formulate the Qur'anic model of human behaviour. If this model is found to be superior to any existing model of human behaviour, we

shall not only accept this model to explain and understand human behaviour we shall also try to practise the injunctions incorporated in this model. There by we shall be in a postition to transform ourselves into better human beings and contribute to a better existence of human race, The holy prophet of Islam (S.M.) has been designated by Allah in AL-Qur'an as '*Was watul Hasana*' the best of model for human conduct. By the teachings of AL-Qur'an and by the influence of his own conduct he could have transformed the then followers of Islam into better human beings; and by the help of such people he could have laid the foundation of an ideal social order. By following the teachings of AL-Qur'an and by following the sayings and conduct of the holy prophet (S.M.) we could also be better people and bring about a universally acceptable ideal social order. May Allah help us in our endevour.

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DEVELOPMENT OF PSYCHOLOGICAL KNOWLEDGE: A SEARCH FOR THE RIGHT PERSPECTIVE. *

S. M. Shahidullah

It is of great hope that the Indian Psychological Association has made "Psychology in National Development" the theme of the conference—an emphasis long due in the sub-continent. But any attempt to integrate psychology with national development is almost sure to get lost in the existing vicious circle unless we proceed on the basis of a sound diagnosis of what is wrong with present Knowledge. Althrough consolidated, over the last few decades, as an independent discipline in the academic arena psychology failed to attract the attention of the society as an indispensable body of knowledge. This failure, as I have tried to make a point in this paper, is the consequence of a frantic race by psychologists to attain scientific status in terms of conceptual and methodological sophistication without adequate concern for humanistic needs.

To begin with the so-called 'pragmatic' concern, why psychology as a discipline could neither be the favored child of national planners nor be the hot choice of prospective students ? The answer lies probably in one word—'irrelevance' of knowledge. Our academic psychology, as many other things, is the imported brand

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* Paper presented at the sub-continental conference of Indian Psychological Association held at the Magadh University in October 16-18, 1984.

From *Dhaka University J. Psychol.*, 1985, Vol. 15, 53 - 57. *Reproduced by permission of the author.*

from the West, more precisely from North America. There is nothing wrong in borrowing since knowledge should be universally accessible. But it makes a lot of difference between blind imitation and creative adaptation.

Traditional psychology took into shape primarily in response to the highly developed western market while we operate in an underdeveloped market characterized by high unemployment and low purchasing power. Let me hasten to add that even the provision of a west-like market is hardly a justification for the present trend of development. We should rather ask ourselves a more fundamental question, that is, how far traditional psychology has accomplished to be recognized as a body of knowledge capable of offering a comprehensive explanation of man's social action. That psychology is far from a leading social scientific discipline even in the industrialized societies is easily noticeable. Psychologists by and large are engaged in the perfection of skills rather than the development of a coherent body of knowledge. They serve primarily as suppliers of techniques and theories to be picked up readily by non-psychologists such as advertizers, communicators, professional managers, psychiatrists and so on.

Practices like these are based on erroneous assumptions about human potentialiality. As for instance, our clinical psychology stands on the assumption that the individual because of his heredity and childhood experiences in the family is solely responsible for his maladjustment to the existing structure. The structure, whatever be the wrong with it, is unalterable and can not be questioned. Thus the clinical psychologists devise artificial techniqies to rehabilitate the individual into the same structure that stands hostile against him. What rehabilitation is attained is anybody's guess! But the

purpose is well served. The individual is condemned and rendered permanently ineffective against an alien but powerful structure.

Our industrial psychology assumes man as nothing more than an appendage to machine. Psychologists in this area are devoted to devise artificial ways and means—either human engineering and/or human relational to ensure optimal and disturbance free exploitation of man's labor power in favor of their master the vested interest. Social psychologists too belittle man by turning him into a laboratory guineapig. Man is assumed to be eternally subject to behavior control developed through researches on attitude change, social perception and so on.

Thus psychologists in general are trained and engaged in devising ways and means only to ensure and increase the margin of profit of their masters. And they do this through banking primarily on human weaknesses such as insecurity, selfish acquisitiveness, greed, jealousy, consumption an so on and so forth. In contrast, man's strength such as his potentialities for independent responsibility, creativity, critical analysis, cooperation and fellow-feeling go unattended and tacitly suppressed. Obviously this approach is in clear conflict with broader and long term human satisfaction.

The more psychologists made themselves detached from himanistic needs the more insecure they became professionally. Prevailing market push fitted well with this professional insecurity to complete the vicious circle. As a natural consequence psychologists erected rigid porfessional demarcation around themselves. They embraced the positivistic, deterministic philosophy of natural sciences which is beginning to be questioned even for the natural sciences. The natural scientific view of so called 'detached' search for truth seperated between

subject and object thus suspeneded human values and critical spirit vis-a-vis the human dimension of psychological enquiry. Psychology ran frantically after the so-called 'universal' objective of being approved as a science. Social scientific objective and comprehensiveness were abandoned to attain scientific rigour. Quantifialbility and methodological sophistication was the goal with the result of narrower and narrower perspective. But we know, it is of little use saying something precisely which is not worth saying.

As an importer of knowledge we swallow all the foregoing shortcomings of traditional psychology plus the disadvantages associated with an underdeveloped market. Therefore, it is crucial now for our well-being to decide whether we are going to continue with our present ahumanistic or rather anti-humanistic role or learn from the mistakes. In view of the foregoing diagnosis, to come up with a fresh start, I have in mind the following recommendations to be considered :

(i) From now on psychologists should shun narrow disciplinary demarcation. A redefinition of disciplinary boundary with maximum permeability is needed so that there be a scope to include any variable that seem relevant for our explanatory scheme. Our reinforcement contigencies too have to be shaped in a manner so that researchesrs feel encouraged to combine external structural variables with intra-individual dynamics of behaviour.

(ii) Psychologists should learn to accept responsibility for the long term consequences of their deeds and innovations. This is important to have a realistic appraisal of our role in the society at large.

(iii) Conceptual and methodological rigour should be viewed only as means for a better understanding of

behaviour. But in no case should be the end in itself at the cost of comprehensiveness.

(iv) Lastly, psychologists have to adopt a critical approach that goes beyond the surface appearance of ideas and concepts and unearth their social and historical content. In this way, we would be able to evaluate the validity of prevailing psychological ideas according to humanistic criteria rather than blind empiricism.

As for instance, we often wonder about what role psychologists can play in national development. But before settling on any specific choice we need to decide what definition of national development be accepted as our basis and whether we are going to formulate our own definition or to side track the responsibility by simply adopting a definition supplied by some quarter. To be more concrete, we have to conceive of national develpment as optimum satisfaction and freedom for maximum number of people and not as high GNP characterized by abundance and excitement for a few at the cost of enslavement of the majority. Such a definition is imperative to address questions like 'why people in large numbers are passive and apathic to authority sponsored development programmes?' 'Why people lack the impetus for information seeking and independent analysis?' 'What alienating factors at work lead people to conform to consumerism and how?' What measures, apart from the manipulation of external reward and work environment, are appropriate to fuse work with pleasure in order to humanize our emerging industrial culture?' Adequate answers to questions like these and others need to be sought both into socio-historic features and intra-individual dynamics. Started fresh with such an outlook

founded on 'mass interest' psychology has a chance to be a trend-setter and leader among the social sciences.

To conclude, I must add that in the task to materialize the foregoing reforms, we might have to undergo an initial period of sacrifice in terms of losing cheap publicity, superficial conformity and even short term personal advancement. But the sacrifice is worth to derive the benefit of our precious heritage of humanism as against alien materialism. It is better we try to be social scientists rather than simple rat-runners.

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II

Studies on Experimental Psychology

1. **A. K. M. Abdur Rahman :** The Role of Decay and Interference in Short-Term Recognition Memory.
2. **Dilruba Afrose** : A Comparative Study of the Memory of Rural and Urban People.
3. **S. H. Mahmud** : Angular sensitivity in Human Visulal System.
4. **Sirajul Islam Khan** : Eye Movement as a Function of Visual and Auditory Stimulations.
5. **S. M. M. Murshed and M. A. Moeed** : Computer Simulation of the Method of Limits and Absolute Tbresholds : A Preliminary Study.

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THE ROLE OF DECAY AND INTERFERENCE IN SHORT-TERM RECOGNITION MEMORY [1]

A. K. M. Abdur Rahman [2]

Decay and interference are suggested to be two major causes of forgetting in both short-term and long-term memory. The relative importance of decay and interference in the explanation of forgetting has been a matter of debate in recent years (Melton, 1963). Results of experiments on long-term memory (LTM)suggest that interference by interpolated material produces greater loss of retention than by simple decay (Melton, 1963; Postman, 1961). But the role of decay as against interference in short-term memory (STM) is not clear (Broadbent, 1963; Corballis, 1965; Melton, 1963; Peterson, 1963).

The experiments reported in this paper were designed to compare the decay process with the interference process in short-term memory for visual stimuli under a recognition procedure. The loss of short-term retention produced by decay alone is compared with the loss brought about by decay and interference operating together. A decay situation was arranged by introducing as

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1 This research was supported by the Defence Research Board Grant 9401-11 to Dr. D. O. Hebb, Professor of Psychology, McGill University, Montreal, Canada.

2 This study formed a part of the Ph. D. thesis by the author submitted to the Faculty of Graduate Studies and Research, McGill University, Montreal. Canada.

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delay between the presentation and test of the items without any interpolated task. The interference condition used interpolated materials similar to the test items between their presentation and test. Dissimilar materials were interpolated with a view to preventing rehearsal during the intervening period between presentation and test as a control condition for both decay and interference by similar materials. Both similar and dissimilar materials were also proactively presented as interference.

The experimental paradigm was to test six independent groups of subjects for six different conditions. Group I was tested immediately after the presentation of the stimuli in order to assess the extent of short-term recognition memory without any decay or interference (decay resulting from the time taken by the presentation and test and inter-item interference were assumed to be common in all cases). This group also served as a control for both decay and interference. Group 2 took the recognition test after an unfilled delay interval following the stimulus presentation (a decay situation with rehearsal allowed). Group 3 was presented with a series of dissimilar items (apparently to be tested) in order to prevent rehearsal during the intervening period between presentation and test. This group also served as "dissimilarity control" for "similarity-interference" group. Group 4 received two series of similar item but was tested for the first series only. Ss were given the impression that all the materials would be tested. This group was assumed to be the retroactive interference (RI) group. Group 5 was the opposite of Group 4; a proactive interference (PI) situation; recognition test was taken for the second series of items. Group 6 was the "dissimilarity control" group for

PI; the first series was the dissimilar items, the second series being the test stimuli. It was hoped that the relative importance of decay and interference processes as cause of forgetting in short-term recognition memory (STRM) could be determined by a cross-comparison of performance of these different groups.

Experiment I

This was an exploratory experiment designed to develop a technique to study the operation of decay and interfernence processes in short-term recognition memory.

Method

Subjects *(Ss)*

Sixty paid subjects (27 male and 33 female) participated in the experiment. They were divided into 6 groups of 10 *Ss* each. The *Ss* were college or high school students between 16 and 22 years old.

Apparatus and Materials

Ten low-association value (0 to 20%) nonsense syllables (Hilgard, 1951) constituted the stimulus items. Another set of similar (common initial letter) low-association value (0 to 20%) nonsense syllable was used as the interference items. Ten 3-digit numbers, selected from a table of random numbers, were the dissimilar rehearsal-preventing items. Thirty new (o to 20%) nonsense syllables were randomly mixed up with the stimulus and interference items to form a sequence of fifty alternatives in the binary-choice recognition test. All items were sequentially presented by a slide projector onto a white screen. Each item occurred on a separate slide (black an white). The rate of presentation was controlled by a Lafayette electronic timer connected with the

projector. The distance between *S* and the screen was 10 feet; and the projected size of the letters or digits was $2\frac{1}{2}$ x $2\frac{1}{2}$ inches.

Procedure

The test consisted of two parts, a presentation part and a recognition part. All *Ss* were individually tested. They were told that the experiment was a recognition-memory test. Ss were instrscted to say the letters or digits of the items in the presentation part. The recognition part required them to respond "yes" or "no" to each of the alternatives indicating whether they saw the item in the presentation series. Subjects were instructed not to count the number of 'yes'es or 'no's, and nothing was said about guessing. As a result, the number of 'yes'es or 'no's for any subject was unrestricted (within the limit of fifty). *E* recorded *S*'s responses on a sheet containing the alternatives arranged in the same order. Any missed item was considered as an error. The rate of presentation for all items was 3 seconds/item with an interval of 1 second between items.

Six groups of subjects received six different treatment conditions as outlined below:

Group 1 : This group took the recognition test immediately after the presentation to the stimuli. The termination of the stimuli was marked by a blank flash on the screen. A question mark "?" appeared on the screen to signal the beginning of the recognition test.

Group 2 : The recognition test was taken after a delay of 40 seconds following the presentation of the stimuli. The projector was turned off during the delay interval and *Ss* rested. There was no specific instruction about the rest interval. *S*'s rehearsal was therefore uncontrolled. After the

delay, S was given a ready signal and the projector was turned on. The test signal "?" appeared and the recognition test followed in the same way.

Group 3 : Two sequences of stimuli were presented; the nonsense syllables were followed by a number series. The two series were separated by a blank flash on the screen. Ss were told that either the nonsense syllables or the numbers would be tested, depending on whether they say the symbol "? L" or "? D" before the recognition test. The test was of course always on the nonsense syllable series.

Group 4 : Two series of similar nonsense syllables were presented with the instruction that either first or second series would be tested, depending on whether the test symbol "? I" or "? II" appeared. The test was always on the first series.

The duration of the interpolated task in both Group 3 and Group 4 was 40 seconds.

Group 5 : This group was just the opposite of Group 4. Subjects received the same instructions as in Group 4, but the test stimuli occurred in the second series; and the second series was always tested.

Group 6 : The number series was presented first followed by the nonsense syllable series. Ss were told that either of the series would be tested; but the test was always on the second series (nonsense syllables).

Results

The number correct (out of ten) was taken to be the recognition score. Since the "yes-no" choice was out of 50 alternatives, individual differences in recognition-error was quite large. The following formula was derived for the correction for guessing in the recognition scores.

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Assume that S actually recognizes x items and randomly guesses another y items.

He guesses then from a pool of 50 - x

Expected number of *correct* guesses $= \frac{10-x}{50-x} Y$

Expected number of *incorrect* guesses $= \frac{40}{50-x} Y$

$\therefore x + \frac{10-x}{50-x} . y = R$ (number right)

and

$\frac{40}{50-x} . y = W$ (number wrong)

Solving for x :

$$x + \frac{10-x}{50-x} \times \frac{50-x}{40} . W = R$$

$$\therefore x + \frac{10-x}{40} . W = R$$

$$\therefore x - \frac{Wx}{40} = R - \frac{W}{4}$$

$$\therefore x = \frac{4R-W}{4} \times \frac{40}{40-W}$$

$$\text{or } x = \frac{40R - 10W}{40-W} \text{ (formula used)}$$

Table I(a)

Group Means and Standard Deviations of the Recognition Scores (Corrected for Guessing) : Experiment I

	Group	Mean	Standard Deviation
1.	Immediate	6.26	1.94
2.	Delay	7.10	1.62
3.	Dissimilar RI	7.72	1.52
4.	Similar RI	4.82	2.21
5.	Similar PI	3.10	1.89
6.	Dissimilar PI	5.56	2.06

The mean and standard deviation of the corrected scores for the different groups are presented in Table-I (a). A one - way analysis of variance was carried out on the corrected scores. The F ratio (7.05; df : 5, 54) is highly significant (P <.001). Following the analysis of variance, Duncan's New Multiple Range Test (Edwards, 1960) was used for individual comparison of the group-means. Table I(b) summarizes the comparison. The comparison shows the performance in the similarity PI group (Group 5) is significantly poorer than all other groups, except similarity RI (Group 4). Recognition in the similarity RI group (Group 4) is significantly poorer than its "dissimilarity control" group (Group 3) and the delay group (Group 2). The difference between the dissimilarity PI group (Group 6) and the delay group (Group 2) also turns out to be significant. This shows a PI effect even with dissimilar items. The defference between the immediate test and delayed-test groups was not significant; nor was the delayed (rehearsal allowed) group significantly

Table-I(b)

Multiple Comparison of Group Means by Duncan's New Multiple Range Test : Experiment I

Group		1 Immediate RI	2 Delay	3 Dissimilar	4 Similar RI	5 Similar PI	6 Dissimilar PI
1.	Immediate						
2.	Delay						p<.05
3.	Dissimilar RI						p<.05
4.	Similar RI		p<.05	p<.01			
5.	Similar PI	p<.01	p<.01	p<.01		p<.05	
6.	Dissimilar PI						

different from the dissimilar interpolation (rehhearsal prevented) group. This indicates that neither decay nor rehearsal seems to have any significant effect on short-term recognition memory (STRM). Only the similarity-interference (retroactive and proactive) factor seems to significantly decrease STRM.

As the items of the interference series were included among the recognition alternatives, a discrimination of the list-membership of each item was required for its correct recognition. An analysis of the recognition errors was, therefore, carried out in order to determine whether the interference items were more frequently chosen than the new items. The mean number of items chosen from the interference and new series by different groups is presented in Table-I(c). As the number of new items among the recognition alternatives was three times larger than interference items, the error-scores from the interference items were multiplied by three to equate the probability of choice of items from both categories (interference and new) of incorrect alternatives. A two-way analysis of variance for repeated measures (interference items and

Table I(c)

Mean Errors of Recognition from the Interference and New Items of the Recognition Alternatives : Experiment I

Group	Interference items	New Items
1. Immediate	6.30	6.30
2. Delay	3.30	3.80
3. Dissimilar RI	5.70	6.10
4. Simialr Ri	11.10	5.50
5. Similar PI	11.10	6.10
6. Dissimilar PI	5.70	5.90

new items) was carried out on the error-scores. The main effect as well as the interaction between the groups and repeated measure (interference items and new items) is highly significant ($p<.001$). Following the analysis or variance, the t-test was applied for the individual comparison of the repeated measures in each group. The difference between the interference and new items chosen was highly significant ($p<.01$) in the two similarity-interference groups (Group 4 and 5). The difference between the interference and new items in all other groups was nonignificant.

Discussion

The results do not show any decay effect of the delay interval used. The recognition performance on the delayed-test group is better than in the immediate-test group. This might have been due to a rehearsal factor counteracting the decay effect. But the recognition score for the rehearsal prevented group (dissimilar interpolation) turns out to be still higher. Although the difference is not significant, this does not support the rehearsal-strategy hypothesis. The better preformance in the delayed-test groups (blank or dissimilar interpolation) is perhaps due to a consolidation process operating during the delay interval while no similar interfering material is presented. This consolidation factor counteracts both decay by the delay interval and interference by the dissimilar materials.

The results, however, show a significant interference effect by similar materials (retroactive and proactive). Groups 4 and 5 (similar interference, RI and PI) yielded the

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lowest scores. But proactive interference seems to be stronger than retroactive. The similarity PI group yielded consistently poorer recognition scores than all other groups. The RI effect is not consistent; the similarity RI group (Group 4) is not significantly different from other non-interference groups except its dissimilarity control (Group 3). This inconsistency in the RI effect might have been due to associational factors resulting from the long exposure duration per item (3 seconds/item) used in this experiment. On the other hand, the PI effect even with dissimilar materials is significant. Performance in the dissimilar PI group (Group 6) is significantly poorer than all other noninterference groups except Group 1 (immediate).

The immediate-test group, for some reason, has a very low performance score. This is perhaps because of the absence of consolidation in this group. In the three test-conditions which prevent consolidation (Group 1, 5 and 6), performance is poor, the similar PI group being the poorest of all. Among the three groups permitting consolidation (Groups 2, 3 and 4), the similar RI group (Group 4) has the lowest score. The poorest performance in the similar RI group is due to similarity-interference counteracting consolidation. But poorer performance in Group 2 (delayed-test, rehearsal allowed) than in Group 3 (dissimilar interpolation, rehearsal prevented) cannot be explained by the consolidation hypothesis. It indicates that rehearsal impairs STRM rather than facilitating it. Thus in Group 2 rehearsal counteracts consolidation, and performance is poor. The dissimlar RI group (Group 3) has the most uninterrupted consolidation as neither rehearsal

nor similarity-interference is counteracting it. Consequently, this group yields the highest recognition score.

The poor performance in the two similarity-interference groups (RI and PI) supports the interference hypothesis in STRM; and the results are consistent with STM findings using recall.

On the other hand, the analysis of errors shows that interference items were significantly ($p<.00$) more often chosen that new items by the groups exposed to the interference items (similarity RI and PI), while other groups not exposed to the interference items chose both the interference and new items on a chance level. This means that recognition as such was not affected by the similarity-interference; instead, the discrimination of list membership of the recognized items was impaired. The appearance of the interference items among the recognition alternatives requires a discrimination of the list-membership of each individual item in addition to judging its familiarity (recognition in the absolute sense). Thus the interference effect measured by the number of items correctly recognized appears to be an artifact of the recognition test used. Similarity interference may not decrease recognition performance in its absolute sense. This impairment of the discrimination of list-membership is similar to interlist intrusions observed in short-term

But how much of the interference effect showed by the recognition scores could be explained away as an artifact could bot be determined from the results. A simpler recognition task without discrimination of list membership is necessary to determine the extent of interference effect produced by similar interference items in STRM.

Experiment II

Experiment I was mainly exploratory; and the exposure duration per item was perhaps too long for a short-term memory test. The decay effect (with or without rehearsal) was not significant. The interference effect, however, was significant, but the trend was not consistent enough to warrant any conclusion. Besides, long-term memory components were found to be prominent as Ss indicated that they were forming associations for the items. Accordingly, Experiment I was replicated as Experiment II with a faster rate of presentation.

Method

Subjects

Another six groups of 10 Ss each were drawn from the same source (23 male and 37 female).

Apparatus and Materials.

The apparatus and materials used were the same as in Experiment I.

Procedure

The same procedure was followed as in Experiment I except that the rate of presentation was 1 second/item; and the delay interval as well as the duration of the interpolated task was 20 seconds.

Results

The same formula was used for the guessing correction of the recognition scores as in Experiment I. The mean

number correct and the standard deviation of the recognition scores (corrected for guessing) for different groups are presented in Table 2 (a). Examination of Table 2 (a) shows that Groups 4 and 5 (similar RI and PI) have the lowest recognition scores. All other groups look more or

Table 2 (a)

Group Means and Standard Deviations of the Recognition Scores

(Corrected for Guessing) : Experiment II

	Group	Mean	Standard Deviation
1.	Immediate	6.65	1.74
2.	Delay	5.88	2.40
3.	Dessimilar RI	6.68	1.79
4.	Similar RI	2.81	2.20
5.	Similar PI	2.58	1.52
6.	Dissimilar PI	6.28	1.51

less alike in their mean recognition scores. A one-way analysis of variance was carried out on the corrected scores. The F ratio ($F = 9.35$; $df = 5,54$) is highly significant ($p<.001$). Duncan's New Multiple Range Test for the comparison of means following the analysis of variance shows that Groups 4 and 5 (similarity RI and PI) are significantly poorer ($p<.01$) than all other groups. There is no significant difference between the similarity RI and PI groups (Groups 4 and 5). however; although the recognition scores in the similarity RI groups is slightly higher than in the similarity PI group. No other groups are significantly different from one another. The comparison of different groups appears in Table 2 (b).

Table 2 (b)

Multiple Comparison of Group Means by Duncan's New Multiple Range Test : Experiment II

Group	1 Immediate	2 Delay	3 Dissimilar RI	4 Similar RI	5 Similar PI	6 Dissimilar PI
1. Immediate						
2. Delay						
3. Dissimilar RI						
4. Similar RI	p <.01	p<.01	p<.01			p < .01
5. Similar PI	p<.01	p<.01	p<.01			p <.01
6. Dissimilar PI						

While the results apparently indicate a significant interference effect (RI and PI) by the similar materials, analysis of the recognition errors reveals a different picture. Table 2 (c) shows the mean error-scores from the interference and new items. As the number of new items among the recognition alternatives was three times larger than the interference items, the error-scores from the interference items were multiplied by three to equate

Table 2 (c)

Mean Errors of Recognition from the Interference and New Items of the Recognition Alternatives : Experiment II

Group	Interference Items	New Items
1. Immediate	4.50	5.20
2. Delay	5.70	5.60
3. Dissimilar RI	7.80	6.20
4. Similar RI	10.50	5.30
5. Similar PI	12.60	6.00
6. Dissimilar PI	7.20	5.40

the probability of choice of items from both categories (interference and new) of incorrect alternatives. A two-way analysis of variance for repeated measures was carried out on the error-scores to determine whether the interference items were significantly more often chosen than the new items. The main effect as well as the interaction between groups and repeated measures (interference items and new items) was highly significant ($p < .001$). The t-test following the analysis of variance shows that the two similarity-interference groups (Groups 4 and 5) chose the interference items (among the errors) significantly more often then the other groups ($p < .001$). The choice from either categories of incorrect alternatives (interference items and new items) in all other groups was on a chance level. The analysis of errors raises doubt about the interference interpretation of the results, and suggests that much of the interference effect could probably be attributed to the discrimination of list-membership of items rather than to the decreasing function of the similarity-interference (RI and PI) effect.

Discussion

As in Experiment I, the results do not show any decay effect by the delay interval used. Only the interference effect due to the presentation of similar materials (RI and PI) seems to produce significant decrement in the recognition scores. Both similarity RI and PI consistently show up in the results. Although there is no significant difference between the two similarity-interference groups, PI effect seems to be stronger than RI as in Experiment I. The STRM loss in the similarity PI group is greater than in the similarity RI Group. This difference might have been due to lack of consolidation in the PI group, while

consolidation facilitates performance in the RI group. But the consolidation hypothesis as such does not seem to be tenable as there is little difference between the non-interference groups enjoying consolidation (Groups 2 and 3) and the ones lacking consolidation (Groups 1 and 6).

The poorer performance in Group 2 (delayed-rest, rehearsal allowed) than in Group 1 (immediate-test)-although the difference is not significant-might indicate a decay effect of the delay interval in spite of rehearsal counteraction decay; and this suggests that if rehearsal were prevented, the decay effect would probably be significant. But the better performance by Group 3 which prevents rehearsal by interpolating dissimilar materials-rules out the decay suggestion. The poorer performance by Group 2 (delayed test, rehearsal allowed) than by Group 3 (dissimilar interpolation, rehearsal prevented) indicates, as in Experiment 1, that rehearsal probably impairs rather than facilitates short-term recognition memory.

While the recognition scores show a significant similarity-interference effect (RI and PI), the analysis of recognition errors suggests that the apparent decreasing function of both RI and PI by similarity might be an artifact of the recognition test. As in Experiment I, the discrimination of list-membership rather than absolute recognition seems to be impaired by similarity-interference. Thus, while both similarity RI and PI effect became consistent after elimination of the associational factors by using faster rate of presentation (1 sec./item), the similarity-inteference interpretation does not seem convincing because the groups exposed to interference chose the interference items (among the errors) significantly more often than new items, but the error-

scores from both categories of incorrect alternatives (interference and new items) in all other groups not exposed to interference chose the interference items (among the errors) significantly more often than new items, but the error-scores from both categories of incorrect alternatives (interference and new items) in all other groups not exposed to interference remained at a chance level. This shows, as in Experiment I, that much of the similarity RI and PI effect obtained could be attributed to impairment of the discrimination of list-membership rather than loss of absolute recognition. Although it could not be determined from the results that how far of the similarity-interference effect is attributable to the discrimination of list-membership, the results seem to question both the decay and interference theory of short-term memory so far as short-term recognition memory is concerned.

Experiment III

The number of recognition responses was unrestricted and guessing was high in the first two experiments. The variance was quite large as a result. The task was difficult because Ss had to decide first whether they had seen a particular alternative before and then, in the similar interference condition, whether the syllable had been seen in the test or in the interference list. Thus guessing probability was high, and consequently, recognition-error was large. Experiment III was designed to use a multiple-choice recognition test with all the alternatives presented together. Guessing would be reduced because the maximum number of choices was limited by the number of correct responses.

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Method

Subjects

The subjects were 71 males and 49 females (between 17 and 20 years old) volunterring from an Introductory Psychology course. They were divided into 6 groups of 20 Ss each.

Apparatus and Materials

The apparatus and materials used were the same as in Experiments I and II, but all the alternatives of the recognition test were arranged together in a random order on a single slide. The distance between S and the screen was 15 feet : and the projected size of the letters or digits was 3/4 x 3/4 in.

Procedure

The procedure was the same as in Experiment II except in the recognition test part. The correct and incorrect alternatives appeared together for comparison in the recognition test. Ss were required to identify the 'correct' items from the list and write them down in any order. They were instructed to write down as many items as they could recognize (not exceeding ten) within a 2-minutes time limit.

Results

As the number of recognition responses for different subjects was still unequal, the same formula was for guessing correction as in Experiments I and II. The mean and standard deviation of the corrected scores for all the groups are presented in Table 3(a).An analysis of variance

Table 3 (a)

Group Means and Standard Deviations of the Recognition Scores (Corrected for Guessing) : Experiment III

	Group	Mean	Standard Deviation
1.	Immediat	3.96	2.34
2.	Dealy	4.61	1.56
3.	Dissimilar RI	3.89	1.81
4.	Similar RI	2.02	1.80
5.	Similar PI	2.10	1.59
6.	Dissimilar PI	4.39	2.11

(one-way classification) was carried out on the corrected recognition scores. The F ratio (F=6.99; df= 5,114) is highly significant (p <.001). Following the analysis of variance, Duncan's Multiple Range Test was used for individual comparison of the different groups. The multiple comparison of the group means appears in Table 3(b). Both the similarity-interference groups (RI and PI) are signlficantly poorer in recognition performance than all

Table 3 (b)

Multiple Comparison of Group Means by Duncan's New Multiple Range Test : Experiment III.

		1	2	3	4	5	6
Group		Imme diate	Delay	Dissi milar RI	Simi lar RI	Simi lar PI	Dissi milar PI
1.	Immediate						
2.	Delay						
3.	Dissimilar RI						
4.	Similar RI	p<.01	p<.01	p < .01			p < .01
5.	Similar PI	p<.01	p<.01	p <.01			p <.05
6.	Dissimilar PI						

other groups ($p<.01$). The difference between all other groups is insignificant. There is of course no significant difference between the two similarity-interference groups (RI and PI), although the similarity PI group (Group 5) has slighty higher score than similarity RI group (Group 4). Unlike the previous two experiments, the delayed-test group (Group 2) has the highest, and the dissimilar PI group (Group 6) the next highest scores. Among the non-interference groups, the immediate-test group (Group 1) is the poorest in performance.

Since the interference items were also included among the recognition alternatives, an analysis of the recognition-errors was made to determine whether the interference items were more often chosen (among the errors) than new items by the interference groups than by the non-interference groups. The mean error-scores from both categories of incorrect alternatives (interference items and new items) are presented in Table 3 (c). As the

Table 3 (c)

Mean Errors of Recognition from the Interference and New Items of the Recognition Alternatives: Experiment III

	Group	Interference Items	New Items
1.	Immediate	3.45	3.50
2.	Delay	1.95	2.45
3.	Dissimilar RI	4.20	3.05
4.	Similar RI	6.75	3.05
5.	Similar PI	7.20	3.30
6.	Dissimilar PI	4.05	2.65

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number of new items among the recognition alternatives was three times larger than the interference items, the error-scores from the interference items were multiplied by three to equate the probability of choice of items from both categories (interference and new) of incorrect alternatives. A two-way analysis of varince for repeated measures (interference items and new items) was carried out on the error-scores. Both the main effect and the interaction between the treatment groups and repeated measures are highly significant ($p<.001$). The t-test following the analysis of variance shows that the two similarity-interference groups (Groups 4 and 5) chose the interference items (among the errors) significantly ($p<.001$) more often than the new items. The non-interference groups, except Group 3 (dissimilar-interpolation), chose items from both categories (interference and new) on a chance level. The dissimilar interpolation group (Group 3), however, chose the interference items significantly ($p<.01$) more often than new items.

Discussion

The results do not show any decay effect of the interval on short-term recognition memory. The similarity-interference effect (RI and PI), on the other hand, is highly significant as the performance in both similarity RI (Group 4) and similarity PI (Group 5) groups is significantly poorer than all other groups (including their respective 'dissimilarity-controls'). This suggests that interference may play a significant role in STRM, while decay does not.

But the similarity-interference interpretation is questioned by the analysis of the recognition errors as in Experiments I and II. The groups exposed to similarity-

interference chose the interference items among the errors significantly ($p<.001$) more often than the new items, while the non-interference groups chose items from both categories (interference and new) on a chance level. This shows that discrimination of list-membership of the recognized items, as required by the presence of both stimulus and interference items among the recognition alternatives, was impaired by the similarity-interference rather than absolute recognition being affected. But this impairment of the discrimination of list-membership, in spite of all the items being available for comparison at the same time, could perhaps be interpreted as a similarity-interference effect, and the results would support the interference theory of short-term memory in that sense.

Group 3 (dissimilar interpolation) also chose the interference items among the errors significantly ($p<.01$) more often than new items. As this group was not exposed to the interference items, the preference for interference items to new items cannot be explained by the discrimination of list-membership hypothesis. The only explanation that could be offered for the greater frequency of interference items (among errors) than new items is the greater similarity of the interference items to the stimulus items. But this explanation even does not seem convincing because no other non-interference group shows this tendency. The explanation is rather unknown and further investigation is necessary to provide the explanation.

Unlike the previous two experiments, rehearsal seems to facilitate preformance as the recognition score in Group 2 (delayed-test, rehearsal allowed) is higher than any other group, though the difference is significant only in case of the two similarity-inrerference groups (Groups 4 and 5). Performance becomes poorer when rehearsal is controlled

by interpolating dissimilar materials (Group 3), although the difference is not significant. This tendency of rehearsal to facilitate preformance, while consistent with STM results using recall, seems to rule out the suggestion made by the first two experiments that rehearsal might impair rather than facilitate STRM. The conflicting results about the effect of rehearsal on short-term recognition memory might have been due to the difference in the recognition procedure used in this experiment.

Another nonsignificant but interesting difference is between Group 1 (immediate-rest) and Group 6 (dissimilar PI). The recognition test in both the groups is taken immediately after the presentation of the stimulus items. In spite of the dissimilarity-interference of the proactively pretested numbers, the performance in group 6 is higher than in Group 1 (immediate-test) which has no interference whatsoever (RI or PI). This difference might have been due to a contrast effect between the numbers and nonsense syllables, or due to a "novelty reaction" to the nonsense syllables after receiving the numbers. On this assumption, however, a similar facilitating effect would be expected in Group 3 (dissimilar-interpolation), even after eliminating the facilitating effect of rehearsal, and in the corresponding conditions of the previous two experiments. This is not the case; and the "contrast-effect" or "novelty-reaction" hypothesis, peculiar to this experiment, would seem convincing if it is assumed that numbers and nonsense syllables have differential facilitating effect on each other due to contrast effect or novelty reaction.

The consolidation effect does not show up in the results as there is little difference between the non-interference groups enjoying consolidation (Groups 2 and 3) and the ones lacking consolidation (Groups 1 and 6)

when the facilitating effect of rehearsal and "novelty reaction" is eliminated.

General Discussion

The results of the present series of experiments do not support the decay theory of short-term recognition memory. The extent of persistence of STRM against decay was not determined in the present study. But within the range of intervals studied (up to 40 seconds), it may be concluded that short-term recognition memory is not subject to decay. On the contrary, short-term recall is often found to be subject to decay with much shorter intervals (Brown, 1958; Peterson and Peterson, 1959). Short-term recognition memory seems to be quite different from short-term recall so far as the decay theory in concerned. The effect of interference is ambiguous. Apparently in the results, the similarity-interference (RI and PI) seems to have produced a significant decrement in short-term recognition memory. But analysis of the recognition-errors showed that the interference effect was perhaps an artifact caused by the interference items among the recognition alternatives.

The results, however, could be interpreted as supporting an interference theory if the discrimination of list-memberiship of the stimulus and interference items is taken as the criterion of performance. Exposure to the similar interference items impairs the discrimination, and intrusions from the interference series are numerous. Wickelgren (1965a) found a similar tendency in recall. Intrusions tend to be similar to the presented items, and their frequency increases with the degree of similarity with the presented items. The same kind of intrusions are also

reported with acoustic similarity of the interference items (Wickelgren, 1965b).

If, on the other hand, the absolute recognition preformance (identification of the previously exposed items; both stimulus and interference) is taken as the criterion, interference has no effect on short-term recognition memory. The impairment of recognition performance in the results was thus an artifact of the presence of the interference items among the recognition alternatives. This suggestion is confirmed by a subsequent study (Rahman, 1968) in which the recognition performance was found to be unaffected by interference when the interference items did not occur among the recognition alternatives. The recognition errors, or false positives, however, appear to be parallel to intrusion errors in short-term recall (Wickelgren, 1966a, 1966b). No definite conclusion is, however, warranted by the results about the decay or interference process in short term recognition memory. Further investigations with longer delay intervals and clear but inteference process are necessary in order to determine the relative roles of decay and interference is short-term recognition memory.

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A COMPARATIVE STUDY OF THE MEMORY OF RURAL AND URBAN PEOPLE ·

Dilruba Afrose

Considerable research findings indicate that interference causes forgetting. McGeoch (1932) in her theory of forgetting and the law of disuse maintains that forgetting varies with the interpolated condition, rather than with disuse, According to her, inhibition occurs due to the competition of the original and interpolated responses. But Melton and Irwin (1940) in their two factor theory of retroactive inhibition maintain that besides the factor of competition between the original and the interpolated reponses at the time of the attempted recall of the original material, factor viz, the unlearning of the original responses comes in to action at the time interpolated responses are being learned.

Kay and Poulton (1951) in an experiment showed that the active retention of the earlier items in a series can interfere with the memorization of original material and memorization of later material is due to the subjects' available 'energies' - a finite quantity divided between trying to retain the old and memorizing the new. The detrimental effect of interpolated activity upon subsequent recall is also comfirmed by the results of the experiment by Loess and McBurney (1965). Loess and McBurney(1965) presented word triads and consonant trigrams individually and tested after nine seconds of interpolated task. The interpolated tasks were either active (subtraction) or

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passive (uttering digits). Recall was best without interpolated task and was poorest in the active interpolated condition. Thus any form of activity was suggested to be the cause of inhibition.

So from the viewpoint of interference theory. it could be assumed that the amount of forgetting would depend upon the amount of interfering activities one is faced with and persons who are to go through more interfering activities would have poor retentive capacity. In Bangladesh, it is an widely observed fact that life in the rural area is more calm and quiet in comparison to the urban life and the rural people face less conflicting activities than the urban people. So it may be argued that the rural people would have better retentive capacity than the urban people. But no research has been done to investigate the relation between memory and place of residence.

The present study was, therefore, designed to investigate the effects of the factors of interference and place of residence on short-term memory. The two hypothesis tested were:

1. When faced with conflicting situation the rural people would recall better than the urban people.
2. The amount of recall would decrease with the increase in the magnitude of competition.

Method

Subjects

The study was done on a sample of 50 male adult subjects (25 from rural areas, 25 from urban areas) and their age ranged from 45 years to 50 years. The rural subjects were selected from different areas under Joydevpur thana of the Dhaka district and the urban

subjects were randomly selected from different areas of the Dhaka city.

As it was found in the pilot study that education had no influence on the memory of the list used in this study, the factor of education was not controlled.

Learning Material

The learning material consisted of 12 paired Bengali adjectives that are common to the day to day verbal communication of the Bengali speaking people. These adjectives were paired in such a way that very strong and specific competition was introduced in the list. As a result of past experience words tend to become associated with other words to varying degrees and for each word the hierarchy of associative strengths tends to be similar for individuals in the same culture. Among the 12 paired adjectives in case of 4 pairs (termed as non-competitive pairs) associative connection between the words of the pairs was thought to be very high as a result of past verbal experience. For each of the stimulus words of these 4 pairs, two synonymous adjectives were selected as stimulus words for the remaining 8 pairs. Four of these eight stimulus words (somewhat competitive pairs) were paired with adjectives with which it had little associative connection and the remaining 4 words (competitive pairs with adjectives with which it had no associative connection. As the stimulus words of somewhat competitive and competitive pairs were highly synonymous with stimulus words of the non - competitive pairs, they had high associative connection with response words of the non-competitive pairs. As a result, the learning and recall of the somewhat competitive and competitive pairs would involve a strong competition because, due to the associative connection the subjects

would have a tendency to pair stimulus words of the somewhat competitive and competitive pairs with response words of the non-competitive pairs.

Procedure

All subjects participated in the experiment individually under the same experimental condition. Immediately following the reading of the instruction describing the method of learning, the paired associate list was repeatedly presented to the subjects until they achieved the criterion of one perfect recall. Each learning trial was followed immediately by a recall series. during which stimulus words of each pair were randomly exposed and subjects attempted to utter the appropriate response words. After the perfect performance the subjects were given a 5-minutes rest period which was followed by a recall session, the procedure of which was the same as that of the recall series following each learning trial.

A 5-second rate(4 sec. exposure. 1 sec. between successive pairs) of exposure was maintained throughout each trial. with a 2-second interval between trials. An incorrect response as well as making no response during the anticipation trial and in the recall session, were counted as errors.

Results

The criterion measure was the number of errors made by the subjects in recalling the graded competitive associated pairs. Each error was designated by a score of one. According to the experimental design the total number of errors of each subject was four in each of the three different groups of paired associates viz. non-competitive pairs. somewhat competitive pairs and competitive pairs.

In order to investigate whether place of residence itself would be responsible for the difference in memory of the urban people and the rural people or whether it would interact with competition to produce such differences. the obtained data were analyzed by a 2X3 factorial design with repeated measure on the last factor. It was hypothesized that place of residence would produce differential effect on the number of errors committed by the subjects only when in interaction with competition. In statistical term an interaction between place of residence and competition was predicted, The obtained results, presented in Table 1, confirmed the first major hypothesis since interaction

Table 1

Summary of the Analysis of Variance for Errors Committed by the subjects in Recalling the Graded Competitive Pairs

Source	df	MS	F
Place of residence	1	7.71	7.49**
Subjects W. groups	48	1.03	
Competition	2	59.73	29.84***
Place of residence × Competition	2	2.92	6.34*
Competition × Subjects Within Groups	96	46	

*p< .05 **p<.01 ***p< .001

between place of residence and competition was found to be statistically significant (F= 6.34; df= 2, 96) at the , 05 level of significance.

As interaction between place of residence and competition was significant, it was necessary to analyze the simple effects. Keeping competition constant simple

effects of place of residence for different degrees of competition were analyzed. The results provided in Table 2 show that the simple effects of place of residence for non-competitive pairs are not significant (F= .03; df = 1, 48) but the simple effects of place of residence are significant for somewhat competitive (F = 6.22; df = 1,48, and competitive pairs (F= 11. 48; df= 1,48) at the. 05 level of significance. The results. therefore. further confirm the hypothesis that not because of the difference in the place of residence but because of difference in exposure to conflicting activities a difference in the number of errors was found, Had place of residence been more important it would have made a difference in the performance of rural and urban people even in respect of non-competitive pairs.

Table 2

Summary of the Analysis of Variance for simple Effects of place of Residence for Noncompetitive, Somewhat Competitive and Competitive Pairs.

Source	df	MS	F
Place of Residence for Non-competitive Pairs	1	.02	.03
Place of Residence for Somewhat Competitive Pairs	1	3.92	6.22*
Place of Residence for Competitive Pairs	1	7.22	11.48**
W. Cell	48	.63	

* p< .05 **p< .005

That the factor of competition is more important than the factor of place of residence in producing poor recall is further proved by the results of the simple effects of competition for urban and rural people. The results

presented in Table 3 indicate that the urban people and the rural people showed singnificantly differential performance (F= 43.78; df = 2. 96 and F= 88. 73; df =2, 96) at the .05 level of significance.

Table 3

Summary of Analysis of Variance for Simple Effects of Competition of the Urban and the Rural People.

Source	df	MS	F
Competition for The Rural people	2	20.14	43.78*
Competition for the Urban people	2	40.82	88.73*
Competition × Subjects W. Groups	96	.46	

*p <.005

Furthermore, Newman Kuels multiple comparisons of the means under three grades of competition revealed that the number of errors committed by the Ss as predicted was highest for the competitive pairs, lowest for the non-competitive pairs and intermediate for the somewhat competitive pairs. However, the results presented in Table-4 show that these differences between non-competitive and somewhat competitive pairs, non-competitive and competitive pairs and somewhat competitive and competitive pairs though are not significant at.05 level they show that the number of errors increased with the increment in the magnitude of competition, suggesting thereby that competition plays an important role in causing poor retention.

Table 4

Multiple Comparison between the Means of the Errors Committed by the subjects in the Recall of Graded Competitive Pairs.

Comparison	Mean difference	Fs at p< .05
A_1 A_2	1.70	2.57
A_1 A_3	2.04	3.09
A_2 A_3	.34	2.57

A_1= Non-competitive pairs
A_2= Somewhat competitive pairs
A_3= Competitive pairs

Discussion

The present study demonstrated that competition was an important factor in causing decrement in recall scores. The main effect of competition was found to be significant at .05 level of significance. The results also showed a significant interaction between competition and place of residence suggesting thereby that both competition and place of residence are important in causing poor retention. But an analysis of simple effects indicates that competition was more important than the factor of place of residence in producing decrement in recall scores. When performances of the rural and the urban people were compared, keeping place of residence constant, both the rural and the urban people showed differential performances at three levels of competition. Similarly. when comparisons were made between the performances of the subjects keeping competition constant, it was found that there was no significant defference between the rural and the urban people in respect of non-competitive pairs but their performances showed significant differences in

respect of somewhat competitive and competitive pairs. That place of residence did not produce the differences is indicated by the fact that the differences in the performances of the subjects were found only in respect of somewhat competitive and competitive pairs. Had place of residence been more important the differences should have been found even in respect of non-competitive pairs.

In a country like Bangladesh rural life differs from urban life to a great extent. A city is a meeting place for the people born and brought up in different places and in different environment. The urban people differ from each other in religion, language. education, occupation and their ways of life. The concentration of so many people in a city leads to different problems and complexities of city life. Moreover. modern civilization has overpowered city life in such a way that the urban people are to undergo a stream of activities most of which are conflicting in nature. The rural people., on the other hand , live a simple life and do not come across too many conflicting situations as compared with the people of the urban area who are supposed to be in constant exposure to conflicting situations. On the basis of this rationale it was hypothesized that when faced with conflicting situations the rural people are likely to recall better than the urban people. The findings of this study supported this hypothesis.

The results of the present study, however, failed to confirm the hypothesis that significant differences would be found between the performances of the subjects at three levels of competition. But the results show a positive trend in the expected direction since the number of errors increased with the increase in the magnitude of competition. The non-significant differences may be an artifact of the small sample. Further research with larger

samples is , therefore, suggested to make generalizations in this regard.

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ANGULAR SENSITIVITY IN HUMAN VISULAL SYSTEM

S. H. Mahmud [1]

Evidence of the existence of edge detector mechanisms in the visual system of lower organisms have been provided by recent neurophysiological studies (Mackay 1961, Hubel and Wiesel 1962). These mechanisms are maximally responsive to stimuli presented in the specific planner orientation e.g, horizontal and vertical. Evidence for similar mechanisms in humans come from the work of McCollough (1965) since she demonostrated colour aftereffect that are dependent upon bar orientation in adaptation and test fields. She attributed the effect in selective chromatic adaptation of two populations of edge detector in human vision, the population of detectors for vertical bars had adapted to orange light while the population of detectors for horizontal bars had adapted to blue light.

The specific neural system responsible for producing aftereffect would be more readily determined if the nature of the test pattern that evokes a response in relation to the adapting pattern were known. Thus Teft and Clark (1968) first pointed out the importance of angular relations between the test and adapting pattern. Their dependent

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1 The author expresses his indebtedness to Professor C.E.M. Hansel of the University of Wales and Dr. J. Mollon of Cambridge University for their suggestions in preparing the test pattern.

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variable was the degree of rotation of the test gratings in relation to the adapting pattern at which the colour disappears. They found that a deviation of 21.5 degree to 25.5 degree, depending on the spatial frequency of the test pattern, was possible in the case of vertical test pattern and 22.5 degree to 27 degree in the case of horizontal test pattern before the colour disappeared completely.

Fidell (1970) examined the orientation specificity of the orientation contingent chromatic aftereffect while varying the angle between the gratings used to produce the adaptation stimuli. She found that pairing red and green with various adaptation gratings whose angular separations was 90 degree produced the effect quite rapidly. However, the divergence of 45 degree and 22 degree subject reported seeing the colour on test pattern less frequently and 11 degree separation in orientation colour responses were rare. Perhaps this reduction in colour responses at the angle of 11 degree was due to the failure of the two adapting patterns to stimulate different populations of edge detectors, which is necessary in order to produce differential colour aftereffect, resulting in only one group of edge detecting units being stimulated. Attempts to determine the shape what Ellis (1976) calls 'Orientation tuning' function for the orientation contingent chromatic aftereffect have also been made by Hepler (1968), Stromeyer and Mansfield (1970), Held and Shattuck (1971) and Ellis (1976).

In the present experiment the effect of angular separations between the adapting and the test stimuli in orientation contingent chromatic aftereffect were measured.

Method

Subjects

Twenty university students of normal or corrected vision were tested. All subjects were naive with respect to the orientation contingent chromatic aftereffect. they were screened for anomalies in colour vision by the Ishihara test.

Apparatus and Materials

The adapting pattern : Two gratings of alternating black and white bars were projected on a white screen with 1000 W, projectors. The ratio of the black bar to the white bar was 1 : 1 in both gratings. The image projected by all patterns covered an area of 15.2 degree X 15.2 degree of visual angle. The light and dark bars each subtended D.4 degree of visual angle. The light and dark bars each subtended D.4 degree of visual angle. A green filter (Kodak Wratten No. 58) was mounted with the one slide and a red filter (Kodak Wratten No. 25) was mounted with the other slide.

The test pattern : The test pattern consisted of bars at angles of 0, 22, 25, 35, 45, 50, 60, 82 and 90 degrees to the horizontal (Figure 1). The width of the bar In the test pattern were the same as those in the adapting pattern.

Procedure :

Adapting procedure : The subject sat 8ft. from the screen and for 10 minutes viewed the chromatic vertical and horizontal gratings, which were interchanged every 10 seconds. Ten subjects viewed the vertical pattern in green light and the horizontal pattern in red light and the remaining subjects viewed the vertical pattern in red light and the horizontal in green light.

Test procedure : Following adaptation, subjects inspected the test pattern in the white light. They reported

the observed colour in terms of red, green, blue, yellow, white or combination of these when the investigator instructed the particular bar in the test pattern to be inspected.

Results

The number of subjects who reported colour effects in the test patterns containing bars at various angles relative to the adapting pattern are shown in Table 1. The strongest effect was found in the bars subtending O degree and 90 degree i.e. those which coincided in the adapting bars. When the angular differences between adaptation and test gratings were increased the number of responses decreased accordingly (Figures 2, 3, & 4). Colour effects were not found with bar subtending 45 degrees, in accordance with McCollough's findings.

Table 1

Number of subjects reporting appropriate colour in the test pattern containing bars subtending various angles (N = 20).

Pattern Number	Angle to horizontal	Angular divergence	Number subjects reporting colour (N=20)	Number of subjects reporting colour (N=12)
1	0 degree	0 dergree	12	12
2	-25 „	25 „	4	3
3	-60 „	30 „	3	3
4	+50 „	40 „	1	1
5	-22 „	22 „	5	5
6	-82 „	8 „	8	5
7	-35 „	35 „	3	1
8	45 „	45 „	0	0
9	90 „	0 „	15	12

Note : No inappropriate responses were made.

Figure 1 : Test Pattern employed to measure the Effect of Angular Divergence of Lines from the Adapting Pattern, (Numbers in the Pattern refer to the various Angles employed.)

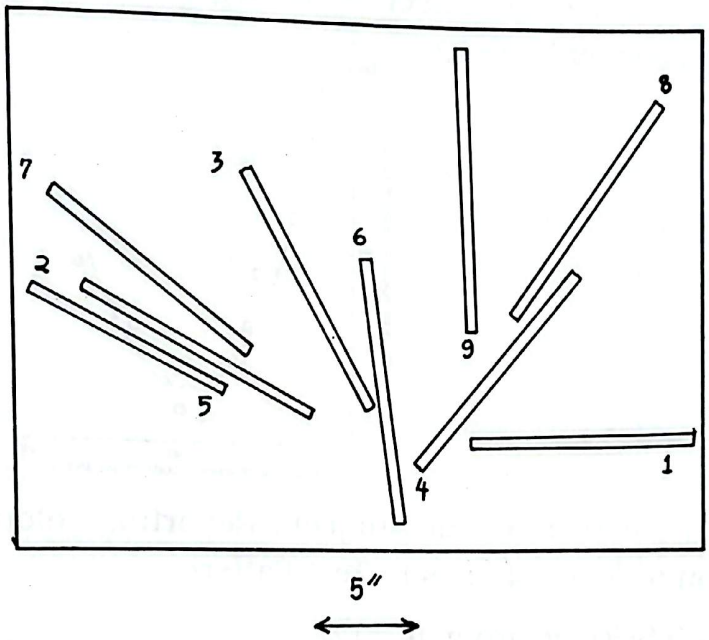


Figure 2 : Percentage of Subjects Reporting colour with Variation of Angle of Bars in Test Pattern to the Horizontal (N=20).

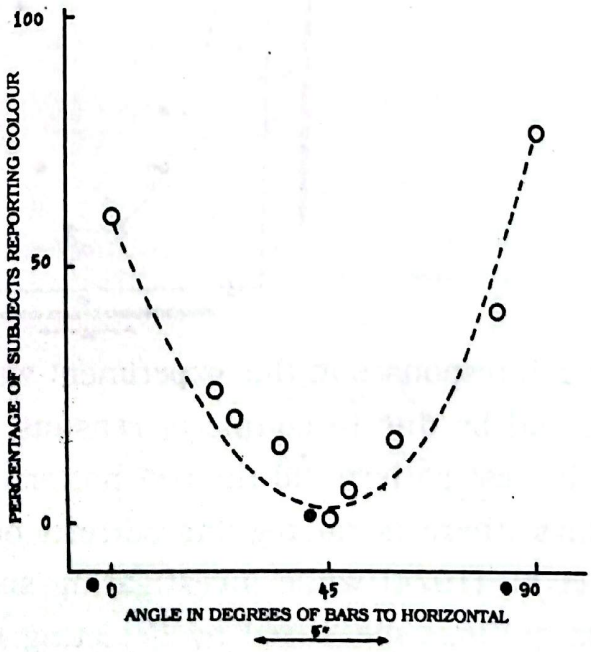


Figure 3 : Percentage of Subjects Reporting colour with Variations of Angles of lines in Test Pattern to the Horizontal (Selected group of subjects who obtained the Effect at O degree and 90 degree shown only) N=12

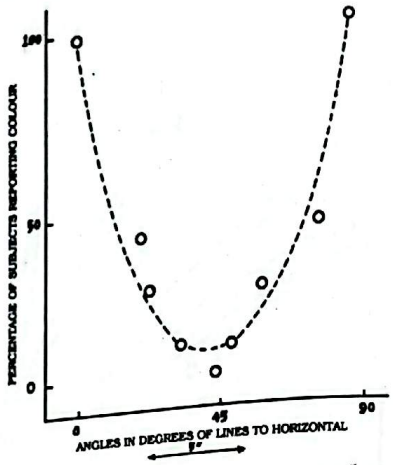
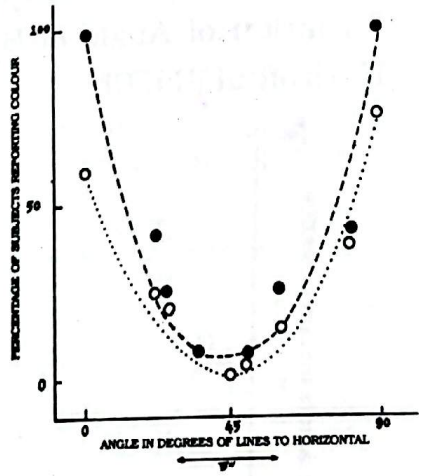


Figure 4 : Percentage of Subjects Reporting colour with Varlation of Angle of lines in Test Pattern.

0 --- 0 Selected group (n =12)

0 --- 0 All subjects (=12)



The overall responses in this experiment was relatively small. It could be due to couple of reasons (i) complex nature of the test pattern, (ii) the test pattern containing isolated bars (there is no regular pattern of gratings). Hoekstra et al. (1974) while investigating sensitivity to achromatic gratings measured by detecting the grating pattern) found that the sensitivity increased with the

number of bars in the grating until a certain critical number is reached. Mahmud (1983) also found that number of responses increased with the increases of the number of bars and the lengh of bars. In the same study he found that colour effects were not obtained in case of a single bar in which the length and the breadth of the bar remain equal. Perhaps in this case both horizontal and vertical edges were equally present and inhibiting each other output, finally resulting 'Zero' perceptual output.

Discussion

The results demonstrate clearly the effect of the angular relations among the adaptation and test stimulus in the maintenance of colour aftereffects. As the angular relation among two stimulus pattern approaches identity the orientation specific receptors become responsive to an increasing range of angular orientations. Conversely, as the angular relation among adaptation and test bar departs, the orientation specific receptors are responsive to a narrow range of stimulus orientation. This result is consistent with the physiological findings and supports an edge detectors mechanism in the visual system that are subject to colour adaptation responding with decreased sensitivity to those wavelength with which they have been most recently stimulated. Thus it appears that edge detector explanation of the orientation contingent chromatic aftereffect sound more convincing.

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NOTES

Further study along this line may be undertaken by varying the angle of the test pattern from 0 to 90 degree systematically. In the present study it was not possible to adapt the projector lens with the polaroid filter to project a test grating in every desired angles.

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EYE MOVEMENT AS A FUNCTION OF VISUAL AND AUDITORY STIMULATIONS *

Sirajul Islam Khan

The simplest type of eye movement is the sudden changes in fixation from one object of regard to another. No change in the angle of intersection of the lines of sight- the vergence - takes place when the observer is at about the same distance from two objects. Indeeed, the eye movement brings the retinal images of the new fixation point on the two foveas of the eyes with a very marked speed. Eye movement of this kind is known as saccades.

During fixation, the eye performs a characteristic pattern of movements giving rise to drift, tremours and microsaccades (Alpern. 1969). The average extent of the saccadec movements is 5. 6 minutes of are (Alpern, 1969). Wertheimer (1952) found that saccades are remarkably stereotyped. But Saslow (1967) found a consistent difference in saccadic movements. Dallos and Jones (1963) found that the eye movements occurred in step with target after the fourth jump when a series of successive saccades between two points in a regular sequence was made by their observers. Yarbus (1967) reported that the subjects made one or two intermediate stops between saccades when they were asked to make a slow change in fixation, but when they were asked to make a slow change in

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fixation. But when they were required to make a rapid change in fixation, he found eye movements characteristic of reduced duration of fixation.

Findlay (1974) noted that it is difficult to understand fully the function of the eye movements in the visual processes, and at the same time one of the most difficult problems with which the psychologists are faced in this particular area is the recording of the fixation eye movement with sufficient sensitivity. By developing the existing techniques, Findlay has devised and apparatus for recording saccades during visual fixation. This effective technique allows saccades to be recorded with considerable accuracy.

In the present investigation. we have used this useful apparatus and technique as developed by Findlay.

The present study was designed to investigate whether eye movements (saccades) occur more frequently during visual stimulation than during auditory stimulation.

Method

Subjects

In this investigation, 20 subjects (*Ss*) with normal vision were taken. A group of 10 *Ss*, randomly selected, was assigned to each of the two conditions under the experimentation viz. Group 1 for the visual stimulation and Group 11 for the auditory stimulation. The subjects were from 20 years to 22 years of age.

Apparatus

UV Recorder (S.E.2006), UV Recorder appliances, varex, Microelectric Amplifier Glass (Model P 16) Photoelectric

Cell, were used for recording the eye movements of the subjects. Photoelectric papers (Kodak Linagraph Direct Print Type 1801 ,6 in. x 45m, light weight paper) were used for the recordings.

Random Y-Guide (Rank Hobson Fiber Optics) was employed as a photoelectric technique for recording the eye movements (Saccades). It was adjusted with the Optician's spectacles frame (Curry and Paxton Croydonan) A fluorescent lamp was used for developing the photoelectric papers in which the saccades were recorded.

One red light of 0.5 volt and 1 amp was used for visual stimulation to the subjects of Group 1. While a timer and signal source presenting a click sound of 54 dB tone was employed for auditory stimulation to the subjects of Group 11. Head band . head -rest, and chin-rest were used to give a steady position to each of the subjects of both groups.

Procedure

Group 1 of 10 Ss was taken, at first, for experimentation under the visual stimulation condition. Experiment was carried out on each of the 10 subjects, one at a time, with an interval of 20 minutes. A red light, the visual stimulus, of 0.5 volt and 1 amp. placed at a destance of 240 cm from the subject's seat. was flashed at a regular interval of 4 seconds. The subject was asked to look at the red light source. A straight line between the light source and the position of the subject's eyes way maintained. The speed of the recording photographic papers was 20 mm./sec. operated from the UV Recorder. A series of 40 visual stimuli (red light flashing) was presented to each of the 10 Ss at a regular interval of 4 seconds. Saccadic movements

of the subjects were, thus, recorded on the photographic papers.

Next, Group 11 of 10 *Ss*, assigned to the auditory stimulation condition, was taken for experimentation, Each of the 10 *Ss*, one after another with and interval of 20 minutes, had undergone the experimentation. Here, a click sound at a regular interval of 4 seconds was presented as an auditory stimulation. the sound source was 54 dB tone operated from the Birkbeck laboratory timer and signal apparatus placed 240 cm away from the subject. A plate screen was placed just in front of the sound source apparatus so that the subject could not see the source of sound. The subject was instructed to look at the centre of the plate screen wnere a round mark, equal to the size of the red light bulb as used in the visual stimulation condition (Expt 1), was mounted . Here also, a straight line between the round mark and the position of the subject's eyes was maintained. A series of 40 auditory stimuli (click sound) was presented to each of 10 subjects at a regular interval of 4 seconds. Thus, the saccadic movements of the subjects were recorded on the photographic papers operated at a speed of 20 mm& sec. from the UV Recorder.

Head- band, head-rest, and chin rest were employed to give a steady position to each of the subjects althrough the experimentation is both visual and auditory conditions.

The criterion scores were the numbers of eye movements(i.e Saccades) of the subjects during two conditions of the experiment.

RESULTS

The results of the study are shown in the Table 1.

Table 1

Means of number of eye movements (saccades)n of the subjects under two conditions and t- Value

	Conditions	Mean	df	t	Significance level
Group 1	Visual	84.7			p ∠ .001
			18	4.32	
Group 11	Auditory	59.2			

Discussion

From the results of the present study it is found that there is a significant differnce between the eye movements (saccades) of Group 1 and Group 11. The Table shows that the difference between the means of Group 1 and Group 11 is significant at .001 level.

The findings of the present invesitigation provide evidence that during visual stimulation saccades happen to occur more frequently than during auditory stimulation. A question may be raised here why is it so?

The answer to this question may be that during visual stimulation saccadic movements increase considerably (Dalios and Jones, 1963, Yarbus, 1964 and Lord and Wright, 1948).

Psychologists of the present era have identified a most vital role between attention and effort. It is evident that individual becomes more attentive to invest his physiological efforts considerably during visual perception than during other perceptions like auditory, olfactory etc (Kahneman, 1973; Norman, 1969; and Khan, 1974).

Our results also show that during visual stimulation the subjects, perhaps. were more attentive to perceive the stimulus as a consepuence of which they invested more

amount of effort in terms of eye movement (saccades) than during auditory stimulation.

Attention, the most important aspect of perception, may have played significant role in our present study Further investigation may be made in this particular direction.

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COMPUTER SIMULATION OF THE METHOD OF LIMITS AND ABSOLUTE TBRESHOLDS: A PRELIMINARY STUDY.*

S. M. M. Murshed and M. A. Moeed

Simulation is a very wide term involving the preparation of a model of a real situation and then conducting experiments on that model (Naylor et al, 1966). Computer simulation too, is quite broad in its scope. In the present study, however, a particular type of simulation in which the computer is set to behave like a subject in a psychological experiment and to generate appropriate responses, has been used. The generated responses, or in other words, the data are then analysed in the usual way but again, of course, by the computer itself. Rose and his associates used this techinque to study the properties of thresholds obtained by the staircase method (Rose et. al, 1970).

The absolute threshold for any sense modality of a person is not a fixed stimulus level. It varies over an interval having a lower limit l_0 and an upper limit l_1. The subject is never able to detect stimuli below the level l_0 whereas he is always able to detect stimuli above the level l_1. Between levels l_0 and l_1, the subject sometimes succeeds and sometimes fails to detect the stimulus. Absolute threshold is defined as the point within the interval l_0 -l_1 where the percentages of success and failure are equal. That is, fifty percent. The probality of detecting the stimulus decreaes as the stimulus level approaches l_0 and becomes zero when it equals or goes below l_0. On the

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other hand, the probability of detection increases as the stimulus level approaches l_1. and it becomes unity when the stimulus level equals or exceeds l_1.

When the probability of detection of a stimulus is plotted against the corresponding stimulus level in a psychological experiment, the data usually corresponds to a cumulative normal distribution function within the interval l_0-l_1. However, descovery of the all-or -none nature of nerve impulses led some theoreticians to propose that the psychometric function is linear, that is, the function takes on a value zero at or below a stimulus level l_0 and a value one at or above a stimulus level l_1. In between l_0 and l_1 the value of the function rises linearly from zero to one (Stevens, Morgan and Volkmann, 1941).

Experimental evidences for the above model have been found for auditory stimuli but owing to the fluctuations in the sensitivity of the subject. the effect is obscured more often than not (Woodworth and Schlosberg. 1954).

In the present experiment, the method of limits was simulated on a microcomputer for studying the effect of the spread of the stimulus levels i.e. the l_0-l_1, interval on the absolute threshold estimate and its SD.

Method

Four series of stimulus levels each with arithmetic mean 7 and step size 1 were used in the experiment. The levels were from 5 to 9 in the first, 4 to 10 in the second, 3 to 11 in the third and 2 to 12 in the fourth series. The first stimulus level was l_0, and the last stimulus level was l_1 for each of these series of stimuli. To minimize errors of habituation and anticipation in a human subject, the

starting point of a stimulus series is varied from trial to trial. But this was not necessary because the responses generated by the computer were guided solely by random numbers and errors of habituation and anticipation cannot occur in a computer unless it is intentionally introduced.

Stimulus levels $l_{0.}$ were always assigned a probability value O. Similarly, stimulus levels $l_{1,}$ were always assigned a value equal to 1. Intermediate stimulus levels were assigned appropriate probability values according to both the cumulative normal and linear psychometric functions. In all, eight separate data files (four for each psychometric function) were created for feeding into the computer.

To run the computer as a subject it was assumed that within the interval l_0 $l_{1,}$ The probability of detection of a stimulus by a subject in a real situation followed the probability value associated with that stimulus levels according to both the comulative normal and linear psycholmetric functions. On each trial a random number lying between O and 1 was generated by the computer and if the corresponding probability of response of the subject happened to be equal to or greater than the random number generated for that trial, a YES response (i, e, detection of the stimulus) was recorded by the computer. Otherwise, a No response was recorded.

Each series of stimuli was run separately in alternate ascending and descending order. The ascending series started with a stimulus level l_0 and the descending series started with $l_{1.}$ Obiously, the first responses for the ascending and descending series were NO and YES respectively. As soon as a response changed form NO to YES or vice-versa, the series was terminated and the

average of the two consecutive stimulus levels containing the change was recorded as the terminal value.

The series of trials were run in blocks of 10 for 100 blocks and also in one block of 1000. This was repeated with two different sets of pseudo- random numbers consisting of four digits after the decimal point and of a value lying in the interval O to 1.

The pseudo-random numbers were generated from trial to trial by multiplicative congruential method (Naylor et. al. ,1966). Three series of pseudorandom numbers for each of the two sets were classified into 10 class intervals and were tested for uniformity of distribution by a simple Chi-square test.

All the programs were written in FORTRAN 77 and the computer used was Alpha Micro 1000.

DISCUSSION

Table 1 and Table 2 show that almost without exception, the SD of the mean threshold values increased with an increase in the number of levels of stimuli. In all the series of stimuli, the mean was 7 and the threshold estimates were quite near this value. These tables also show that SD for 100 blocks of 10 series were consistently lower than the SDs found for 1 block of 1000 trials.

This last observation, however, is not at all unexpected. It happened because in computing the SD of one hundred mean thresholds found for each of the 100 blocks of 10 series the variability was already smoothed out; whereas, in computing the SD of the one thousand mean thresholds found for each series. the full extent of the variabilities was present, So, this result may be considered an artifact.

On first sight , increasing SD with increasing number of stimulus levels may also appear to be an artifact because longer $l_0 - l_1$, interval increases the scope for variability.

RESULTS

Table 1

Mean and SD of threshold estimates for the first set of random numbers.

		Psychometric functions							
		Cumulatve normal				Linear			
Stimulus series		5 to 9	4 to 10	3 to 11	2 to 12	5 to 9	4 to10	3 to 11	2 to 12
100 blocks	Mean	7.02	7.30	7.06	7.19	6.96	7.10	7.09	6.81
10 series	SD	.19	.27	.28	.23	.34	.33	.73	.74
1 block of	Mean	7.20	7.30	7.06	7.19	6.96	7.10	7.09	6.81
1000 series	SD	.61	.93	.93	.96	1.00	1.54	1.99	2.56

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Table 2

Mean and SD of threshold estimates for the second set of random numbers.

Stimulus Series		Psychometric functions.							
		Cumulative normal				Linear			
		5 to 9	4 to 10	3 to 11	2 to 12	5 to 9	4 to10	3 to 11	2 to 12
100 blocks of 10 series	Mean	6.99	7.55	7.12	7.21	7.02	6.95	6.84	6.79
	SD	.18	.24	.34	.27	.31	.43	.58	.60
1 block of 1000 series	Mean	6.99	7.55	7.12	7.21	7.01	6.95	6.84	6.79
	SD	.60	.87	1.08	.96	.94	1.45	1.93	2.65

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Table 3

Frequency distribution of first set of Pseudo-random numbers.

N	f	.1	.2	.3	.4	.5	.6	.7	.8	1.0	Chi- square
100	9	17	8	11	8	6	13	10	8	10	8.80
500	59	55	48	57	50	47	47	47	45	45	4.72
1000	108	107	101	118	99	93	101	107	79	8	11.48

Table 4

Frequency distribution of first set of Pseudo-random numbers.

N	f	1.	2	3	4	5	6	7	8	1.0	Chi- square
100	5	12	13	11	7	8	8	16	13	7	11.00
500	38	45	60	58	51	46	51	54	57	40	10.32
1000	87	92	109	115	122	82	100	101	106	86	15.80

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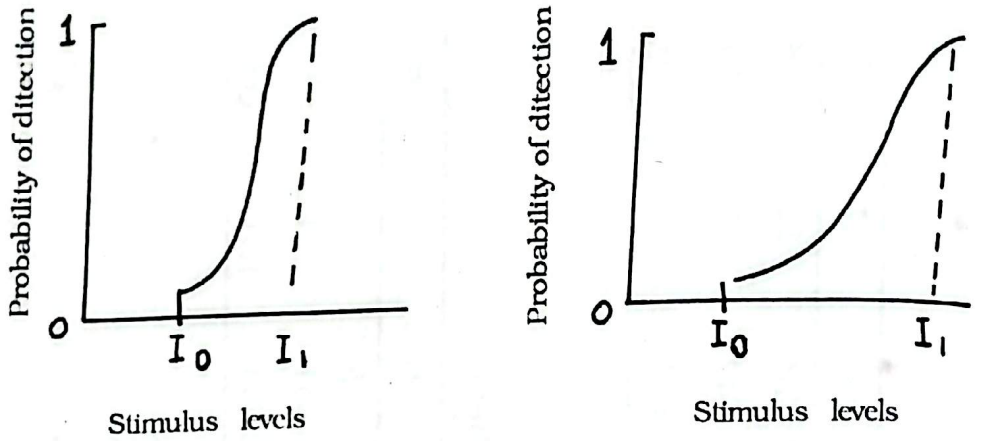
But, looking from another angle, we may relate the length of $l_0 - l_1$, interval to that of sensitivity of a sense organ. The more sensitive the organ, the less the $l_0 - l_1$, Interval and vice-versa. This point is illustrated in Figure1 below for cumulative normal psychometric function. The same applies for linear psychometric function also.



(a) Keener sense organ. (b) Less sense organ.

Figure 1

A deficiency of this preliminary study was the non-uniform distribution of the pseudo-random numbers as shown in Table 3 and Table 4. An expected distribution where the random numbers were equally distributed in all the class intervals, was tested against the observed distribution of random numbers. All the Chi-squres showed significant deviation from uniformity. It is suggested that in future studies of the same kind, the random rumbers may be made to distribute themselves uniformly.

The idea of making a uniform distribution of random numbers may sound strange because, apparently, the randomness is lost in attempting to make the distribution uniform. But this is not so. To make the distribution

uniform, what is done is that once the frequency in a class-interval of random numbers becomes equal to the expected frequency, further random numbers falling in that class interval are rejected. Random numbers continue to be generated randomly until the frequencies in all the class- intervals become equal to the expected frequency. Comparison of data in cumulative normal and linear psychometric functions as well as comparison of data with two different sets of random numbers did not show any significant change.

The conclusion that may be drawn from the experiment is that simulation of a 'perceiving subject' is possible but provision is necessary for making the distribution of random numbers uniform. Further studies on the same line may be done with the method of constant stimuli and a comparison with the threshold estimates by the method of limits may be made.

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III
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SOCIAL PSYCHOLOGY OF THE CLASSICAL CONDITIONING OF INTERPERSONAL ATTITUDES *

Hamida Akhtar Begum

Recently Lott and Lott (1960; 1968) have proposed a learning theory of interpersonal attitudes based on the basic principles of the Hull-Spence reinforcement model. To be attracted to or to like another person is construed within their framework as having a positive attitude toward him. A positive attitude is defined, after Doob (1947), as an anticipatory goal response (rg-sg) having both cue and drive properties. The primary proposition relevant to the learning of liking is that "if a person is rewarded in the presence of another, a positive attitude towards that other will be formed" (Lott & Lott, 1968; p. 68). This rests upon the following assumptions :

1. Persons may be conceptualized as discriminable stimuli to which responses may be learned.
2. A person ... who experiences reinforcement or reward for some behaviour will react to the reward, i. e. will perform some observable or covert goal response (Rg or rg).
3. This response to reward will become conditioned like any other response to all discriminable stimuli present at the time of reinforcement.
4. A person ... who is present at the time when individual X, for example, is rewarded thus becomes able in a later situation to evoke Rg, or, what is more likely, its fractional and anticipatory component, rg-sg. This latter response, which Hull has called "expectative" (1952, Ch. 5), was earlier interpreted by Doob (1947) as the underlying mechanism of an attitude (Lott & Lott, 1960, P. 298).

* *From The Dhaka University Studies*. Vol. XXII (Part. A) : 1974. *Reprinted by permission of the author.*

The classic study (Lott & Lott, 1960) that tested the major hypothesis employed sixteen same-sex groups, each composed of three children. Every child played a non-competitive board game ('Rocket Ship') during which some children were rewarded for success and others were not. Each play-group was composed of the members of the same class (Grade III and Grade V) who had not chosen or rejected each other on sociometric test adminsistered by their teacher. The reward consssted of four plastic cars for four (out of a possible six) successful landings of one's rocket on a planet target. Approximately one hour after the last group had played the game, the class room teacher administered the dependent measure, i.e. another sociometric test requiring each child to choose two from his class for a "vacation on a nearby star out in space". A t-test of these data revealed that the rewarded children made significantly more choices of play-group members who had been present when they obtained reward than did children who had not been rewarded during the game. From this and some other subsequent studies (Lott & Lott, 1964; James & Lott, 1964), employing similar methods, Lott and Lott (1964) concluded that "the receipt of reward in the presence of a previously neutral person is a sufficient condition for the development of a positive attitude toward that person" (p. 70).

The question arises : Does the design of the experiment permit us to accept this conclusion? A closer examination of the experimental set up shows that the "neutral person" in their study was not merely "present", he was present as a member of a triad interacting with others for a common goal. Although reward was given on individual performance basis, the instructions provided a group-set for the three persons. For example, the subjects were told: "... You three are rocket ship pilots. Each one of you has your own ship

but you are going to take a trip into outer space together, side by side ... When you get a danger point you will have to decide which one of you will take a chance and be the first to try either the striped or white path ..."

These words clearly indicate that the experimental situation was that of a group situation rather than an individual in presence of others. We know from the literature on group cohesiveness that interpersonal attraction may increase with increasing degrees of cohesion (Cartwright & Zander, 1960. Priest & Sawyer, 1967). Also there is evidence that people show more liking for persons who had been successful in similar king of work (Gilchrist, 1952; Shaw & Gilchrist, 1955). So, it may be argued against Lott and Lott that the positive attitudes shown by the rewarded subjects toward play-group members may simply be an artifact of 'groupiness' under success. A valid test of the theory requires the manipulation of the "presence of others" in such a way that it does not allow subjects to develop a group-set.

The present study was, therefore, designed to test Lott and Lott's basic proposition under adequate control for group-set. The experiment employed two sets of instructions : one was intended to create an individual-set and the other was to induce a group-set among subjects playing a non-competitive game. It was hypothesized that persons rewarded in dyadic situation would be more likely to develop positive attitudes toward "others present" only under group-set and not under individual-set.

Method

Subjects

Forty-four boys, 24 from Grade II and 20 from Grade III, from the St. Avila Elementary School (Winnipeg, Canada) served as subjects.

Procedure

The subjects were divided into 22 pairs on the basis of a sociometric test. The members of each pair had neither chosen nor rejected each other on this measure. The test was administered by the regular class teacher on the day before the experiment was conducted. The instructions* for this sociometric test (1) were as follows : " ... In school you often play games or work in small groups. Sometimes you do them very well, sometimes not. In fact, in any kind of group-activity it is important that everybody in the group gets along very will. Perhaps you have noticed that when all the members in a group are friendly their performance becomes good. Therefore, I think it would be good for me to know who you like most and least so that in future it might help in grouping you together for group activities in school. On this sheet of paper write down the names of two of your class-mates you like most and the two you like least. The boys will write boys' names and the girls will write girls' names only. This will be kept completely confidential. So, please be frank."

The experimental task in which rewards and non-rewards were manipulated consisted of a game involving finger dexterity. Each subject was asked to fill a box with 20 holes with small sticks within 30 seconds on a number of trials. Since approximately 30 seconds (on the average) were required for completing the box, it was always possible for the experimenter either to stop the subjects (in non-rewarding situation) or let them continue (in rewarding situation) without arousing any suspicion.

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* The instructions were given verbally and, therefore, the wordings were sometimes changed or make the students understand the rask. The content, however, remained the same.

Of the 22 pairs, 12 were assingned to the experimental condition involving instructions intended to create individual-set among the subjects. The other 10 pairs were assigned to the group-set condition. One half of the subjects in each condition were rewarded and the other half received no reward (in a predetermined random order).

On the day of the experiment (separate days for the two classes) the experimenter was introduced to the subjects by the teacher. The subjects were told that they would be given to play some game. The teacher sent the subjects in serial order to the experimental room according to a perpared list supplied by the experimenter. Under individual-set each pair was seated apart (in two separate tables approximately one yard apart) and weregiven the following instructions : "I will give you a game which each of you will play one after another. You can see here a red box with holes in it, some sticks, and a stop-which. Your task will be to fill all the holes with these sticks within 30 seconds. Each of you will have 20 chances to do the same. For each 2 successive successful trails you will get a marble. So, if you are successful in all trials, you will get 10 marbles. And if you win 10 marbles, you can have a toy car of your own choice from here. So, you see, in this game each of you have a chance of winning 10 marbles and a car. But remember, if you do not win all the marbles you won't get anything, i.e. neither the marbles nor the car. When I say 'start' you start filling the holes and when I say 'stop' you will know that your time is up. O.K.? Now X, you will play first and Y, you will wait there until X is finished and

please don't talk. All right? Start now." As soon as X was finished with his work he went back to the class and the next person in the list came to take Y's position.

In the group-set the subjects were seated side by side beside the same table and were given the following instructions :

"I will give you a game which you will play together. You see here a red box with holes in it, some sticks and a stop-watch. Your task will be to fill all the holes with these sticks within 30 seconds. Each of you will have 10 chances* to do the same. For each successful trial you will get a marble. So, if both of you are successful in all 10 trials, each of you will get 10 marbles. And if you win 10 marbles, each of you can pick a toy car of your own choice from here. But remember, if any one of you do not win all the marbles, you won't get anything, i.e., neither the marbles nor the car. Now you decide who will play first. When I say 'start' you start filling the holes and when I say 'stop' you will know that your time is up. O.K.? Start now.'

Before each trial the experimenter asked the subjects, "who is going to take the next turn ?" and gave the task according to their decision. Each and everypair in this condition decided to take alternative turns after each trial. All the marbls won by each pair were kept together in a box. At the end of their session they divided their share. Reward was given on all or none basis. So, each subject received either 10 marbles and a car or nothing.

Approximately two hours after the last pair had played the game, the experimater administared the sociometric test 11 the test was as follows : "Suppose each of you gets a chance to go to the moon. Just imagine. Of course, you will not to alone. You can invite two of your classmates. Who would you like most to invite ? Write their names on this paper."

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* The number of trials was reduced in order to keep the exposure time (10 min.) of the dyad to each other constant.

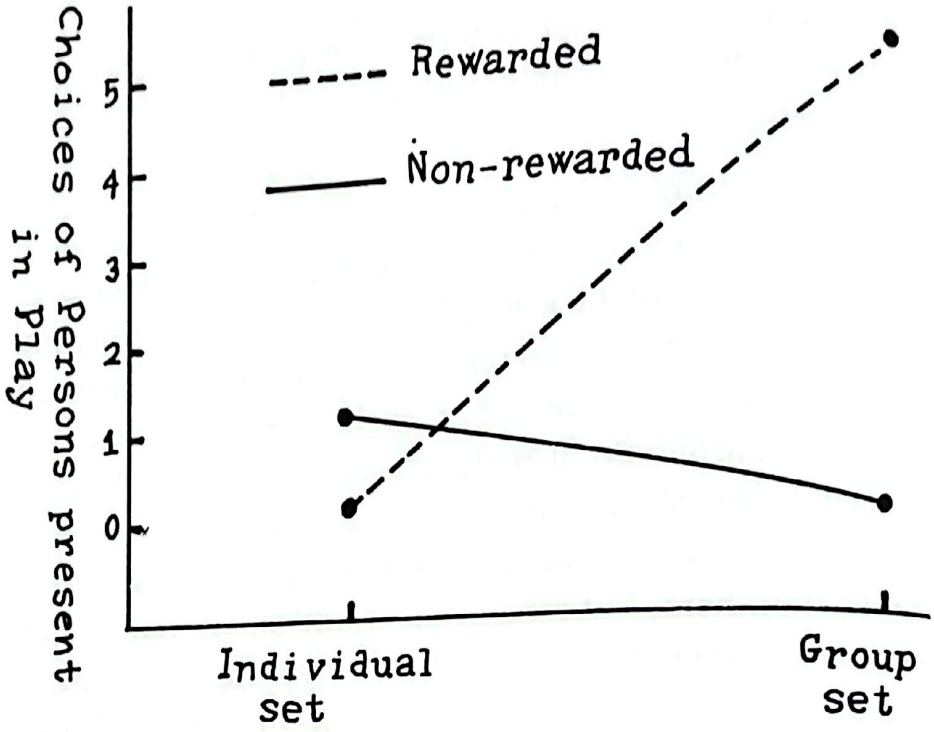

Fig. 1. Choice of persons present in play situation made by subjects on Sociometric Test II under different Experimantal Instructions.

After their choices were collected, the subjects were thanked for their cooperation. They were told that all of them had done very well in the game and those who had not received any prizes were given marbles and toy cars as given to the rewarded group.

Results

The dependent measure of this study was the subject's choice of the person present at the play situation obtained from the sociometric test II. These choices in each condition are graghically shown in figure 1.

The study hypothesized that a positive attitude toward the person present in the play situation would be formed under rewared condition only when they would receive instructions inducing group-set. In statistical terms, therefore, a significant interaction between instructions and reward conditions was predicted. So, the data were analyzed by a 2 × 2 Analysis of Variance. The results of this analysis are presented in Table 1.

Table 1

Summary of the Analysis of Variance of subjects' choices of the persons present in play situation under different experimental conditions.

Source	df	Ms	F
Reward	1	0.04	0.66
Instructions	1	0.04	0.66
Reward x Instructons	1	1.38	23.00*
Within Cells	40	0.06	

*p ∠.01

As predicted, the rewarded subjects were found to have chosen their play-mate for the imagined trip to the moon more than the non-rewarded subjects only under group-set. This was indicated by a significant interaction between reward and instructions (F = 23.00; df = 1.40 : p. ∠ (01). The data indicated that the effect of reward was significant only when they received instructions inducing group-set. (Fig. 1.)

These results clearly supported the hypothesis that persons rewarded in a dyadic situation are more likely to develop positive attitudes toward "others present" under the group-set and not under the individual-set.

Discussion

The present findings failed to support Lott and Lott's proposition that the receipt of reward in the presence of a neutral person is a sufficient condition for the development of liking or positive attitudes toward that person. The proposition would have been supported if the results had indicated a significant effect of reward under individual-set where each subject played the game individually in the presence of another person for whom he had neutral liking. But this was not obtained in this study. On the contrary, it was found that Lott and Lott's findingsare replicable only when the subjects play together under an experimental condition inducing some kind of groupiness or cohesiveness, This suggests that the data obtained by Lott and Lott were probably an artifact of the experimental set-up of the socalled 'presence of others'.

The findings further suggest that in addition to the presence of the other person, various factors related to his presence are important in developing a positive attitude toward him. For example, the degree of interaction between the two persons, e.g. encouraging remarks, smiles, etc. (Homans, 1950), the reward status of the other compared to one's own (Deutsch, 1959; Stotland, 1959) and even the physical distance between the persons (Cartwright & Zander, 1960) may contribute to the interpersonal attraction. Although it is upto further research to show the significance of each of these variables, it is evident from the present study that a greater degree of communication and the physical proximity between the persons, as in the group-set condition, should not be ignored in an experimental paradigm like Lott and Lott's. The finding that the subjects rewarded in presence of another developed a liking for the other under the

group-set only and not under the individual-set clearly indicated the significance of the social environmental factors in the formation of interpersonal attitudes. The study, therefore, suggests a reexaminaton of the basic proposition of Lott and Lott's theory of interpersonal attitudes in the light of the social psychological phenomena of the expenimental situation.

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PSYCHOLOGICAL AND SOCIO-CULTURAL FACTORS AS RELATED TO ATTITUDES TOWARDS FAMILY PLANNING AMONG WOMEN IN BANGLADESH

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and

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In arresting the galloping rate of our population growth large amount of money has been spent since 1960, when for the first time a regular programme of family planning was undertaken by the government. Since then many national and international organisations have also been working in this field. Most of the activities of such organizations are service-oriented programmes which are primarily launched out of the conviction that there exists a "latent demand" for family planning services. But how far such a latent demand exists in our society is questionable. Data collected by the National Impact Survey of Pakistan in 1968 showed that only 6.5 percent of the urban married couples and 3.6 percent of the rural married couples under 50 years of age of erstwhile East Pakistan (now Bangladesh) were using contraception (Serageldin et al,1975) . The study conducted by Stoeckel and Chowdhury (1967)showed that despite 6 years of publicity in the Kotwali thana of the district of Comilla, only 4 percent of the married fertile couples were found to practice any contraception. When we focus attention on the trend of our population growth, it becomes clear that no significant

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reduction has taken place in the rate of birth per annum-- the crude birth in 1965 was 50 (approximately) per thousand, and still in 1977 it was approximately the same (Muhammad, 1974)

So the question arises as to what success is achieved by spending millions of taka in family planning programmes? It is obvious that the existing family planning programme needs some change or at least needs some assistance from other ingenious programmes so that a favourable attitude towards family planning can be created and an internal demand for it can be accelerated. Therefore, the first task is to recognise those variables which can break down the resistance towards family planning and facilitate the development of favourable attitude towards it.

In the following section we put forward some hypotheses regarding the factors affecting attitude towards family planning ; the next two sections make an attempt to test those hypotheses in the context of Bangladesh, and some concluding observations are made in the final section.

Factors Determining Attitude Towards Family Planning

Six possible variables which could influence development of attitude towards family planning among Bangladeshi women were examined by the present study. The investigated psychological variables were (i) sex role perception (ii) decision making behaviour and (iii) independence training in childhood. The socio-cultural variables were (i) educational level (ii) family income level and (iii) rural-urban background. We shall discuss in the rest of the section the manner in which these different variables may affect people's attitude towards family planning.

The Psychological Factors

In what manner men or women behave in a society depends considerably on how they perceive their sex roles. 'Sex-role' refers to the expectation of the society as regards what role a female or a male should play. Traditionally in our society, attitude related to "feminine role" involves positive feelings for being lovable, getting married, being an obedient housewife, raising children, being a loving mother and submissively doing all the household work, etc. Various studies have shown that women who deviated from the "traditionals" in their sex-role perception were better adjusted in colleges, had higher ambition in life, were higher in achievement motivation and had higher educational aspiration (Turner, 1962; Tangri, 1967 Lipman, 1973) . We can thus assume that the women who possess a traditional sex-role perception, will develop seclusion and passivity in life and thus will not realise the importance of family planning. On the other hand, those who develop a contemporary or liberal sex role perception will become active in life and will develop favourable attitude towards family planning.

A number of studies on decision making behaviour (i.e., the extent of one's participation in the happenings of life) reveal that pattern of initiative in the activities of life is an important factor in the context of one's fertility regulation (Friendman; 1959) Chaudhury (1977) found that working and non-working women significantly iffer in their fertility, at least in the lower levels of education. Berelson (1969) and Jaffe and Azmi (1960) have shown that active participation of women in companionship, recreation, creative and productive activites etc., may compete with her raising of children. Women who had been engaged in such activites were frequent users of contraceptives and consequently showed lower fertility.

The foundations of one's social attitudes, religious beliefs, etc, are all laid in home during early years of one's life. Thus the type of training in childhood determines how independent and responsible a woman feels as compared to the man in the family. In particular, 'independence training' viz., to learn to be self-reliant in a situation of relative freedom from parental control is likely to play an important part in developing one's sex-role perception. We may expect a woman who experienced very traditional and conservative form of childhood training to display traditional pattern of sex-role, i.e., a passive role in al subsequent adult life, giving rise, consequently to a negative attitude towards family plaining, while the opposite will be true for someone who received 'independence training.'

The Socio-cultural Factors

Chaudhury's (1977) research on urban married women found a strong positive relationship between famale education and the use of contraceptives. More educated females revealed lower fertility as measured by number of children born. He found that this relationship was true for every age group. Studies conducted in Thailand (Hawley1960) and Singapore (Lim,1966) also revealed very convincingly that better educated wives desired fewer children and showed more favourable attitude towards the government programme of family planning than the poorly educated wives.

Several studies have found that income level of an individual is also an important determinant of fertillity regulating behaviour. Chaudhury (1975) in his study found that level of income has a positive relationship with

attitude towards abortion as a method of population control. Similar results were obtained in two studies in India. (Goyal, Walveker,1973).

Researchers have also attempted to examine the impact of residential background on one's attitude or behaviour in the context of family planning. Chaudhury (1975) found that those who lived 10 or more years of their life in village had relatively less support for abortion.

On the basis of the above discussion, the present study hypothesizes that the women who differ in their (I) decison making behaviour, (active-passive), (2) sex-role perception (liberal-traditional), (3) independence training experience (more independent-less independent) (4) educational background, (5) economic status, (rich-poor), and (6) residential background, (rural-urban), also differ in their attitude towards family planning. The following sections make an attempt to test these hypotheses.

Data And Methodology

In all 240 females of procereative age from 9 districts of Bangladesh were selected as subjects for this study. A large portion of the sample comprises of unmarried women, because they are the potential individuals whose attitude development towards family plannimg is of great significance in the population growth of our country. The age of the subjects ranged from 16 to 45. Half of the subjects were selected from urban areas, and the other half from different rural areas of Bangladesh. In both rural and urban sub-samples better educated and poorly educated women were equally reprsented. Women who had formal education upto class X or above were considered as better educated while those who had education less than class V were considered as poorly educated.

Out of total 240 subjects, 120 were selected from rich families and 120 from poor families. Women who came from families having income above TK. 2000/- were considered as rich while those who came from families having income less than TK. 600/- were considered as poor. Out of 60 rural more-educated subjects 30 were selected from wealthier families while the remaining 30 were selected from poor families. Similarly, out of 60 rural less-educated subjects rich and poor families were represented equally. The same categorization was done for the 120 urban subjects in selecting the poor and rich.

Of all the subjects, 160 were married out of which 80 were recorded as housewives and 40 as working women. In respect of age, 159 subjects ranged from 15 to 24 years, 71 ranged from 25 to 34 years, while only 10 subjects ranged from 35 to 45 years.

Name of the groups along with the number of subject selected from each group is presented below:

	Groups	Number
1.	Rural Rich Educated (RRE)	30
2.	Rural Poor Educated (RPE)	30
3.	Rural Rich Uneducated (RRU)	30
4.	Rural Poor Uneducated (RPU)	30
5.	Urban Rich Educated (URE)	30
6.	Urbaln Poor Educated (UPE)	30
7.	Urbal Rich Uneducated (URU)	30
8.	Urbal Poor Uneducated (UPU)	30

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Four separate semi-standardized questionnaires on sex-role perception, decision making behaviour, independence training and attitude towards family planning and a personal data bank, were used for the present study. These questionnaires were adapted and translated for the present study from a number of well-known original documents. The questionnaires were adapted to our culture, translated, and wherever necessary items were added. Then after giving each questionnaire an independent status, they were merged in a single form with four parts.

In its final from, the questionnaire on Decision Making Behaviour consisted of 15 items. The items involved phenomena like decision making regarding children, earning for the family, purchasing necessities, choosing partner in marriage, choosing career, tackling family affairs during the absence of a male member, etc. Each item involved two or three alternative answers. The subjects had the opportunity to score from O to 17 where O expressed the strongest point of passive participation while 17 the strongest point of active participation in life.

First part of the questionnaire on Sex Role Perception consisted of 34 statements, dealing with adult female role situations, particularly related to family and social life. The subjects had the opportunity to score from O to 34, where O was the strongest position of being traaditional and 34 was the strongest position for being liberal. The second part consisted of only two paragraph statements, where the subjects indicated their agreement with one of the two paragraphs. Paragraph 'A' stated that women should focus her attention on home and family affairs, while paragraph 'B' stated that women should be equal to men in opportunities, pay and types of occopation chosen.

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The possible score was from 1 to 5; score 1 indicating a traditional viewpoint and score 5 a liberal one.

The questionnaire on Independence Training consisted of 14 items dealing with scope and freedom of thought and action, regulation imposed on behaviour, appreciation or criticism for assertive behaviour, scope and extent of mixing with members of the family, nature of purdah system, restriction on female education, etc. Each of the items involved two or three alternative answers. The possible range of scores was from O to 21.

The questionnaire on Attitude towards Family planning (AFP) contained 16 items dealing with factors like religious prejudices against adoption of family planning, impact of family planning devices on health and conjugal happiness, social indecency of family planning, justification of less child bearing for the sake of mothers' health, for reducing family expenditure, for solving socio-economic problems, etc. Each item involved 2 to 3 alternative answere. The possible range of scores was from O to 27.

Results

All statistical analyses were performed through Analysis of Variance. In demonstrating the effect of Sex-Role Perception (SRP), Decision Making Behaviour (DMB) and Independence Training (IT) on Attitude towards Family Planning (AFP), the subjects were demarcated by the median score obtained in each of the variables i.e., a median split of scores was done to divide the subjects into two opposing poles. In analysing AFP, SRP, DMB and IT as a function of education, income and rural-urban back-ground, effect of any two of these variables were controlled

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by manipulating the combinations of the sub-groups, to see the effect of the third variable.

Table I shows that better educated females significantly differed from poorly educated females (P<.001) in AFP. The $\bar{x}$ (average) AFP of the better educated females was 21.46 where as the $\bar{x}$ AFP of the poorly educated females was 16.74. This difference between the concerned groups in AFP produced a large F value of 77.44 which is significant at. .001 level.

Table 1

Analysis of Variance Showing How Attitude Towards Family Planning Differs as a Function of Variation in Education. Income and Rural-Urban Background

S/	df	SS	MS	F
Total	239	5,813.96	-	-
Education (E)	1	1,349.00	1,349.00	77.44**
Income (1)	1	73.70	73.70	4.23*
Rural-Urban Residation (RU)	1	306.00	306.00	17.57**
E x I	1	1.51	1.51	0.09
E X RU	1	28.71	28.71	1.65
I x RU	1	1.51	1.51	0.09
E x I x RU	1	11.70	11.70	0.67
S/EFC	232	4,041.80	17.42	-

* P < .05

** P < .001.

Thus it demonstrates very clearly that females with higher educational back-ground were possessing more favpourable attitude towards family planning.

Results also show that women from rich families have more favourable attitude towards family planning. The $\bar{X}$ AFP of the wealthier class was 19.67 whereas the $\bar{X}$ AFP of

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the poor class 18.56. THe difference however was significant at. 05 level only.

The results also show that urban women had more favourable AFP than rural women. The $\overline{X}$ AFP of lhte urban women was 20.24 while the $\overline{X}$ AFP of the rural women was 17.98 with a $\overline{X}$ difference of 2.26 in favour of the urban women (P<.001).

No significant interaction was observed between education and income, between educated and rural-urban background and between education, income and rural-urban background.

In analysing the effect of SRP, DMB and IT on AFP, only the effect of education was equalized for both the groups. This was one because education was found to be having a considerable effect on AFP.

There seems to be signficant difference between women who were active participants in life and women who were passive (Table 2). The active women expressed more favourable attitude towards family planning.

Table 2

Analysis of Variance Showing The Influence of Active Participation in Life on Attitude Towards Family Planning

SV	df	SS	MS	F
Total	239	5,813.96		
Education (E)	1	1,349.00		
Decision Making (DM)	1	387.60	387.60	22.81**
F x DM	1	67.21	67.21	3.96*
Error	236	4,010.15	16.99	

*P ‹ .05

** P <.001.

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The $\overline{X}$ AFP of the high DMB group, was 20.38 while $\overline{X}$ AFP of the low DMB group was 17.84, the difference being significant at .001 level.

The women with liberal sex-role perception showed significantly more favourable attitude towards family planning (Table 3). The $\overline{X}$ AFP of the liberal SRP group was 20.12, while that of the traditional SRP was 18.11, and the differences was significant at .001 level.

Table 3

Analysis of Variance Showing the Effect of Sex-Role Perception on Attitude Towards Family Planning

SV	df	SS	MS	F
Total	239	5,813.96		
Education	1	1,349.00		
Sex-Role-Perception (SRP)	1	242.00	242.00	13.62*
E x SRP	1	28.71	28.71	1.62
Error	236	4,194.25	17.77	

*P < .001.

Table 4

Analysis of Variance Showing How Attitude Towards Family Planning Differs as a Function of Variation in Independence Training

SV	df	SS	MS	F
Total	239	5,813.96		
Education (E)	1	1,349.00		
Independence Training (IT)	1	308.38	308.38	17.70*
E x IT	1	45.10	45.10	2.59
Error	236	4,111.48	17.42	

*P < .001.

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The results also show that the women who had more independence training were possessing more favourable attitude towards family planning. (Table 4). The $\overline{X}$ AFP of the women who experienced more independence training (IT) during childhood was 20.28, while that of the women who experienced less independence training was 18.02, and the difference was significant at .001

Discussion And Conclusion

The results of the study are supportive of the hypotheses that the women who were active participants in life, who had liberal sex-role perception and who experienced higher independence training would experess more favourable attitude towards family planning (AFP), as compared to their opposites. The results also support the hypotheses regarding the soco-cultural variables that the women who would have higher educational background who belong to a rich family and who reside in urban area, would have more favourable AFP, as compared to their opposites. However, among all the psychological and socio-cultural variables investigated, educational level was found to be the most significant determining factor of AFP, while economic leval was found to be of least significance. Among the psychological variables, decision-making behaviour, that is, active-passive participation in life was found to be the most significant determinant of attitude towards family planning.

The positive effect of education on AFP obtained in this study is supported by many earlier research. A study in East Java, Indonesia (Gille and Paradoko, 1966) showed that about 77.8 percent of the educated females revealed

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their willingness to use family planning methods as compared to 61.1 percent of the uneducated families. The positive effect of education on AFP has also been reported by Sirageldin et al. (1976) and Chaudhury (1975) in Bangladesh.

Based on the findings of the present study and previous research done in this area, it can be suggested that to develop favourable attitude towards family planning it is essential that first and foremost a vigorous education programme be launched. Comperhensive women programmes should also be initiated to become active in life, so that they can come out of their seclusion and develop liberal sex role perception breaking away from traditions, prejudices an superstitions. At present only 2.9 percent of our women folk have educational background between 6th to 10th grade (1974 census). NO amount of money can bring success to any family planning programmes unless our people become educated.

Hence it be more beneficial if the money that is being spent today on population control sector was spent for a nationwide primary education programme. At present more money is being spent on higher education than either on secondary or primary education. In 1975-76 fiscal year our policy makers allocated TK. 75.6 million for primary education, TK. 36.3 million for secondary education, whereas TK. 118.00 million was allocated for our 6 universities. But the benefits of this kind of educaton goes to the privileged few. Therefore, for the greater benefit of the society we should immediately start a programme to provide minimum education for all. Otherwise our service-oriented family planning programmes can never reach their desired goal.

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EXPERIMENTER EXPECTANCY EFFECT AND INTERNAL- EXTERNAL LOCUS OF CONTROL OF EXPERIMENTERS AND SUBJECTS. *

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and
Manfusa Shams

Research over the past two decades have shown that the expectancy or hypothesis held by an Experiementer *(E)* may influence the interaction between the subject *(S)* and the *E* in such a way that the hypothesis is confirmed (Rosenthal 1966). This phenomenon was first demonstrated by Rosrenthal in a person perception task and was designated as Experimenter Expectancy Effect *(EEE)* or Experimeeter Bias (E bias). Operationally, this was a significant diference between the data obtained by positively and negatively biased Es.

Although this expectancy effect has been found in a variety of tasks and situations such as, motor performance (Johnson, 1970 a, 1970 b), learning (Kennedy, Cook and Brewer, 1970), clinical testing (Marwit and Marcia, 1967; Masling 1966), sensory deprivation (Raffeto, 1968) and even in class room performance of students (Rosenthal and Jacobson, 1968; Beez, 1968), there are many studies in which this effect was not obtained (Begum, 1973, 1975; Friedman 1964; Wessler, 1966; Wartenberg-Ekran, 1962; Pflugrath, 1962). As such, there has been an increasing emphasis on revealing the factors determining the presence or absence of EEE (Barber and Silver, 1968).

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Along this line there has been some research to explore the effects of personality characteristics of *Es* and *Ss* on EEE (Rosenthal, 1966; Resenthal, 1969). There is enormous evidence that the anxiety level of *E* (Fode, 1965) his need for approval (Mulry, 1962) and authoritarian nature of personality (Mulry, 1962) remarkable determine the kind of data that is obtained.

Since E expectancy research is essentially a social influence situation (where certain cues transmitted by the Es with difference expectancies are perceived and interpreted by the *Ss)* the dimension of personality that makes the *E* exert greater influence on the *S* and makes the S relatively more sensitive to the cues transmitted by the *E* is expected to incase *EEE*. One such dimension which may be related to *EEE* is the Internal. External locus of control or I-E dimension of personality (Rotter, 1966). This dimension of personality, according to Rotter, refers to the extent to which an individual feels that he has control over the reinforcement that is related to his behaviour. Externals are said to believe that forces beyond their controls (fate, chance etc.) the are essential factors controlling the reinforcement. Internals, on the other hand, believe that they control their own behaviour and are effective agents in determing the occurance of reinforcement.

A review of the literature shows that I-E dimension has relationship with a variety of behaviours including learning, (Blaler 1961; James, 1959). conformity (Crowne and Liverant, 1963) and risk taking (Liverant and Scodel, 1960) Gore (1962) demonstrated that susceptibility to social influence is mediated by I-E dimension of *Ss* particulary in subtle influence attempts. Phares (1865) showed that Internal *Es* indueed greater influences in

changing attitude statements on the part of the *Ss* than External *Es*. These findings strongly suggest that I-E dimension of personality is a potential variable in the mediation of *EEE*. Since *E* expectancy situation is essentially a social situation where the *E* is fouud to exert uninteational influence on the *S*. Internal *Es* having generalized expectancy that they are control of their own behaviour may be more effective agents in influencing the Ss than External *Es* not having such expectancy. As such. greater *EEE* is likely to be obtained Internal *E* than External *Es*, As *E* expectancy operates on Ss, similar dimension of personality is likely to have significant effect on *EEE*. Assuming that External Ss who believe that forces outside their control are essential factors controlling reinforcement are more sensitive to the uninteded cues transmitted by the Es with specific expectancies, It may be expected that these Ss would produce greater *EEE* than Internals, Thus, it was hypothesiged that:

1. *EEE* would differ significantly as a function of *E's* I-E dimension of personality in such a way that Internal *Es* would obtain greater expectancy effects than External *Es*.
2. *EEE* would differ significantly as function of *S's* dimension of personality in such a way that external *Ss* would produce greater *EEE* than Internal *Ss*.
3. There would be a significant EEE across all treatment conditions. That is there would be a significant difference in responses obtained by *Es* with high and low expectancies.

Method

Experimenters *(Es)* : Twelve college students (8 female and 4 male) of Final year B.Sc. served as *Es* in response to a request made by the investigators. They were

selected from a larger pool of volunteers on the basis of scores on Rotter's I-E scale (administered a few days ago) in such a way that half of them were Internals (scoring 0 to 6) and half Externals (scoring 10 to 16).

Subjects (*Ss*) : The *Ss* were 120 female college students of the first year B. Sc . level. They were also selected on the basis of I-E score in such a way that half of them were Internal (scoring 10 to 16).

I-E Scale : A Bengali version of Rotter's (1960) Internal - External locus of control scale (Jahan, 1979) was used to measure I- E dimension of personality. The scale consists of 29 items of which 6 are filler items. The items are presented in the from of forced choice paper pencil test. Total number of external choices formed *Ss'* scores.

Experimental Task : The experimental task consisted of rating colour stimuli (1×2) inch coloured papers mounted on 3x5 inch white cards on a 20 - point scale of colour richness. The scale ranged from – 10, indicating extermely colour poor, to + 10, indicating extremely colour rich, with intermediate labels, The colour cards were chosen from a larger number of cards that were previously rated neutral in terms of colour richness by a sample of 60 judges (female college students). The average ratings of the selected cards ranged from + 1 to – 1. The colour cards, thus selected, were numbered randomly.

Inducement of E Expectancy : When an *E* arrived, the principal investigator (second author) demonstrated the cards, rating scale, the instructions printed on a paper to be read to each *S* and the recording sheet. While explaining the task, each *E* was led to believe that the colour-judgement task was a way of testing the Ss' personality characteristics. Showing some fictitious data she/he was also led to believe that some subjects would

rate the colours positively (+5) and others negatively (-5) as they showed such tendencies on similar tests of personality. Proper care was taken in inducing such bias so that the *Es* do not become suspicious. The list of names of the *Ss* for whom such expectations were induced was also provided by the principal investigator.

Design : The study consisted of a 2 × 2 × 2 factorial design repersenting two levels of E expectancy (high and low) , two levels of personality dimension of *Es* (I-E) and two levels of personality dimension of *Ss* (I-E).

Procedure : The experiment was conducted in two phases. In the first phase, I-E scale was administered to the potential *Es* and *Ss* from which 12 *Es* and 120 *Ss* were selected on the basis of their scores on this measure in such a manner that an equal number of Internals (O to 6 scores) and Externals (10 to 16 scores) were chosen. Each of the selected *Es* tested 10 *Ss* in separate sessions. Prior to the testing of *Ss*, expectancies regarding their ratings on the experimental task were induced in the *Es* by the principal investigator in the manner described earlier. While testing the Ss, The *E* read the printed instructions to the *S*, showed one card after another and recorded her responses on the recording sheet. After the experimental session, both the *E* and the *S* were thanked by the principal investigator for their participation.

Results

The dependent variable of this study was the mean ratings of colours (10 ratings per S) obtained by the *Es* who were led to expect high (+5) or low (–5) averege ratings from their *Ss* under each of the four combinations of personality dimensions of *Es* and *Ss* i.e. Internal *Es* - Internal *Ss*, Internal *Es* - External Ss. External *Ss*- Internal *Ss* and External Es- External Ss. In order to test the hypotheses, these scores were analysed by a 2 × 2 × 2 Analysis of Variance. The results of this analysis are

presented in the following Table :

Table 1. Summary of the Analysis of Variance for Mean Ratings of Colours of Internal and External Ss obtained by Internal and External *Es* with high and Low Expectancies.

Source	df	MS	F
I--E of Es	1	0.00	0.00
I--S of Ss	1	1.59	1.15
E expectancy	1	508.41	368.41*
I--E of Es X 1-E of Ss	1	0.04	0.03
I--E of Ss X E expectancy	1	283.62	205.52*
I--E of Es X E expectancy	1	1.32	0.96
I--E of Es X I --E of Ss X E Expectancy	1	0.04	0.03
Error	112	1.38	

* $p < .0001$

It shows that the hypothesis that the Internal Es would obtain greater *EEE* than the External *Es* was not supported as the interaction between I – E of *Es* and *E* expectancy was not significant (F = 0.96; df = 1, 112. This indicates that the ratings obtained by the *Es* under high and low expectancies did not vary significantly as a function of their 'Internalness' or 'Externalness' of personality. The hypothesis that *EEE* would differ significantly as a function of *Ss'* I–E dimension of personality was supported as the interaction between I – E of *Ss* and *E* expectancy was highly significant (F= 205.52; df = 1,112; p <. 0001. As predicted, the Externals were found to have confirmed *E* expectancies) ($\overline{X}$ ratings = 4.16 under high and – 3.03 under low *E* bias) more than the Internals ($\overline{X}$ ratings = 1.32 under high and .27 under low *E* bias). The hypothesis that across all treatment conditions significant *EEE* would be obtained was also supported as the main effect of E expectancy was highly significant (F=

368.52; df =1,112; p ∠.0001). The ratings obtained under high expectancies of *Es* ($\bar{X}$ ratings=2.74) were significantly higher than those obtained under low *E* expectancies ($\bar{X}$ ratings =1.38).

Discussion

The results of the present study revealed that I-E dimension of personality of Ss is an important variable in determining *EEE*. The finding that External Ss confirmed E's hypothesis more than Internal Ss is consistent with Gore's (1962) observation that External *Ss* are more influenced by *E's* subtle influence attempts than internal Ss.

I-E dimension of Es. however, was not found to have any effect on *EEE*. Internal *Es* obtained as much expectancy effects as External *Es*. This is contradictory to Phares' (1965) observation that Internal *Es* can induce greater influence on *Ss* than External *Es*. A possible reason for this may be that while expectancies were induced by the principal investigator, the External *Es* were more biased than the Internal Es as Externals tend to be more influenced by outside forces than Internals, As such, while testing the *Ss* the External *Es* might have expected as much influence on *Ss* through unintentional cues as internal *Es* inspite of their potential differences in exerting influence on others. Thus the expectancy effects obtained by Internal and External *Es* was similar. Futher research along this line is necessary to have a better understanding of I-E dimension of *Es* in the mediation of expectancy effects.

Another finding of this research is an overall effect of *E* expectancy in colour- judgment task. In may be noted that significant *EEE* was not obtained with this task in previous studies (Begum, 1973). The present finding, therefore, broadens the domain of experimental situation where *E* expectancy is a variable to be concerned with.

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A STUDY OF SOCIAL MORALE OF HIGH SCHOOL STUDENTS IN BANGLADESH AND ITS RELATED FACTORS *

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and

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Morale is one of the most important social phenomena that activates people to flourish society for a continuous progressive march through united action. In general terms, morale of an individual or of a group signifies the conditions with respect to self control, self confidence an disciplined action which often directs the behaviour of an individual both qualitatively and quantitatively. G. W. Allport (1943) defined national morale as "an individual attitude in a group endeavour." This implies that both personal and social features are involved in the psychological condition which we call morale.

The psychological resources of a country include not only intellectual abilities and special skills but also the social and emotional traits which we call morale. In any developing country, including Bangladesh, morale or

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1 From Dhaka University Studies, B, XXX, (2) : 1-11, 1982 Reprinted by permission of the author

* Paper read in the Annual Conference of Bangladesh Association for the Advancement of Science, held in February, 1982. The project was financed by U.G. C. Bangladesh.

'esprit de corps' is an important prevalent condition for national progress. Bangladesh is very rich in human resources. We have youth force, one of the principal forces of society, full of vigour and energy. The youths have important roles to play in the rehabilitations of national values and ideals and help establish a tradition of democratic rights, liberty and equality and of truth, honesty and discipline. Given proper opportunities which help highten their morale, they can do wonders in translating the ideal of building a happy society into reality. And in achieving this end it is essential to assess the exisiting morale of these young people and identify the factors related to it so that appropriate measures may be adopted to convert the youths into a constructive work force. The present study was designed to this end in view.

Review of literature showed that in Bangladesh no study has yet been done in the area of morale. Outside Bangladesh as well, there are very few studies on morale compared to other areas. Most of the studies on morale have been done in the industrial field. The study that attempted to investigate morale of senior school students was done in India by Das Gupta in 1976. He conceived of students social morale as a working spirit of student community at large for national rcconstruction. Operationally, social morale of students has been defined in terms of their physical and psychological disposition, home adjustment, personal-social adjustment, personal societal adjustment and their adherence to group belief. These five measures of the Social Morale Inventory (SMI-determined social morale of students in terms of their adjustment patterns to some important and undisputed areas that usually build up the perspective of their life,

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These areas were- health and temperament, attitude towards parents and family enviornment, sociability and personal social perference, attitude towards the educational, legal and economic system of the country and social belief of a student. This inventory was found to be reliable and valid measure of student's social morale.

Using this Social Morale Inventory the present study attempted to assess social morale of senior students in High Schools of our country. It also aimed at focusing on some determining factors of social morale. The factors apprehended to be related to social morale were - teacher - student ratio, parents' education, family income and sex of students as well. It is generally assumed that in the schools where limited number of students are admitted and the ratio between teachers and students is high, the students are properly guided and have adepuate interaction with their teachers and other students which is congenial to the development of social morale. Parent's education is also likely to have an important effect on creating a congenial atmosphere at home through differential child rearing practices. The reason for including family income as a factor was that different levels of income may provide differential facilities for healthy growth and development of attitudes underlying social morale. Finally social morale of boys and girls were compared to see if they differ significantly.

Method

The Sample

The sampe used for developing norms for students' social morale consisted of 784 students (462 boys, 322

girls) of Class X from twenty schools of Dhaka, Chittagong, Rajshahi, Khulna and Jessore districts. Of this larger sample, 378 students (195 bays, 183 girls) from eight schools of Dhaka City, four having high teacher - student ratio (1: 30) and four having low ratio (1: 50 or above) constituted the sample for investigating factors related to social morale.

Instrument used : The Social Morale Inventory (SMI)

The SMI was developed in Bengali language by Das Gupta (1976) to study and develop a norm of social morale of the higher class secondary high school students in West Bengal. It consisted of four scales and one category for social belief. A brief description of these is given below :

1. *Constitutional Scale (C)* : It consisted of 33 items concerning health and temperament i. e. whether one is free from recurrence of some common ailments like diarrhoea, cold, skin diseases, headache, asthma or general weaknes temperamental. disbalancement fear, anxiety, jealousy, tolerance of frustration, anger etc.

2. *Home Adjustment Scale (HA)* : It consisted of 25 items of informant's attitude toward parents and family environment as a whole.

3. *Personal Social Adjustment Scale* (PSA) : It consisted of 31 items concerning, sociability and personal social preference which indicated student's skills and limitations for developing his personal social relation during school life.

4. *Personal- Societal Adjustment Scale (PSLA)* : It consisted of 31 items concerning informant's views of educational. legal and economic system of the state.

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5. *Social Belief Category (SB) :* It consisted of 15 items concerning informants' adherence to group beliefs i. e. beliefs about objects, people, events etc.

In all the SMI consisted of 135 items with printed instructions. The inventory used in this study constituted three parts : Part- I included the general information items. Part-II included items on Constitutional scale, Home Adjustment and Personal Social Adjustment scale. Part -III included items on Personal Societal Adjustment scale., Items on each measure were arranged hierarchically on the basis of their discriminatory powers. Items on Social Belief were incorporated in between items of personal Societal Scale without disturbing their hierarchical arrangement.

Scoring and Interpretation

Scoring of this inventory was done following the Likert method. For each student a total score was obtained in each of the five measures. High scores indicated higher trend in each measure. For example, high scores on constitutional scale would characterize a student with a healthy constitution i. e. he is said to be active, optimistic and of desirable vigour and cheerful spirit. Low scores indicated ill health and unbalanced temperament. Similarly, high scores in Home adjustment indicated healthy relation with parents and siblings and a close affinity towards home. Low Scores, on the otherhand, reflect conflicts or unhealthy family environment and in general one's maladjustment in home life. High scores in Personal Social Adjustment scale would characterize habitual easy move in different social settings in

community, neigbourhood and society, a happy and tension-free group life with desirable skills of playing social roles. Low scores would indicate the opposite. High scores in Personal Societal Adjustment scale would signify a student's regard toward the exisiting trends of educational , legal and economic systems of the country, The administrative authority and leaders controlling policies of society. Low scores would be indicative of inner conflict in this respect. Finally, high scores in Social Belief Category would characterize the students with high degree of adherence to group belief indicating predominancy of group cohesiveness and low scores would indicate the opposite trend.

Procedure

In order to collect data from the students, a tentative programme schedule was developed. As per this programme, the Research Assistants visited each school with a letter addressed to the Head of the institution from the Director of this Project (First author). Then according to mutual convenience the SMI was administered to the students in their class room situation. After being introduced, the Research Assistant solicited the students' co-operation answering the questionnaire. The students were assured that their responses would be used only for research purposes and their personal identity would not be revealed under any circumstances. The Research Assistant, then, read the printed instructions which explained the purpose of the questionnaire as well as the way one should answer the questionnaire. On completion of SMI, the students and teachers concerned were thanked for their participation.

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Results

In order to assess students' social morale, means and standard deviations of students' scores on all five measures of SMI, were computed. These are shown in Table 1. Since boys and girls did not differ significantly on

Table 1.

Means and standard deviations of student's scores on Five Measures of SMI

	Constitutional Factors	Home Adjustment	Personal Social Adjustment	Personal Societal adjustment	Social Belief
Mean	92.94	71.52	80.83	71.43	44.38
SD	16.35	11.84	13.97	8.52	6.18

any of these measures percentile norms for five measures of SMI were developed on the basis of the scores obtained by all respondents (784). These norms are presented in Table 2.

For testing the potency of the four factors viz, teacher-student ratio, parental education, family income , and sex, scores of a smaller sample of 378 students (195 boys and 183 girls) were analyzed.

Teacher- Student Ratio (T-S) and Social Morale

It was expected that the students from schools with high T-S ratio (1 : 30 and below) would have higher morale than those with low T-S ratio (1: 50 and above). The reason behind this expectation was believed to be the difference in discipline prevailing in the schools. In order to verify this assumption, 75 parents were asked to rate the

Table 2.

Percentile Norms for Five Measures of Social Morale Inventory Based on the scores of 784 High School students of Bangladesh.

Scores	Percentile Ranks				
	Constitutional Scale	Home Adjustment Scale	Personal Social Adjustment scale	Personal societal Adjustment scale	Social Belief Category
128-130	100				
125-127	99				
122-124	98				
119-121	98		100		
116-118	95		100		
113-115	92		99		
110-112	87		99		
107-109	81		98		
104-106	75		96		
101-103	68		93		
98-100	60		90	100	
95-97	53	100	85	100	
92-94	46	99	80	99	
89-91	39	97	73	98	
86-88	34	93	66	96	
83-85	28	87	58	92	
80-82	22	77	50	85	
77-79	18	68	42	75	
74-76	15	57	34	63	
71-73	12	47	26	50	
68-70	9	37	19	36	
65-67	7	28	14	23	
62-64	5	22	11	14	
59-61	4	16	8	9	100
56-58	2	11	6	4	99
53-55	2	8	5	1	95
50-52	1	6	3		85
47-49	1	4	2		70
44-46		3	2		52
41-43		2	1		34
38-40		1	1		19
35-37		1			10
32-34					5
29-31					2
26-28					1

selected eight schools on a 5- point scale to indicate the degree of discipline perceived by them. These ratings indicated that high T-S ratio schools were indeed perceived to have high discipline ($\bar{X}$= 4.10) than the schools with low T-S ratio ($\bar{X}$= 2.57).

To test the significance of differences between the scores obtained by students in high and low T-S ratio schools, t-tests were applied to the scores on all measures of SMI Means and t-values obtained are presented in Table 3. These results indicate that the students from Schools

Table 3

Mean scores and to obtained for students with high and low T-S Ratio on Five Measures of SMI.

T-S Ratio	Constitutional Scale	Home Adjustment Scale	Personal Social Adjustment	Personal Societal Adjustment	Social Belief
High	90.5	72.96	78.10	70.10	44.65
Low	86.37	67.85	76.75	69.10	42.00
t	2.37	3.76	1.39	0.94	3.79
df	376	376	376	376	376
p	< 0.20	< 0.001	<0.20	n.s	< 0.001

with high T-S ratio possessed more physiological and psychological disposition, had more congenial home atmosphere and had higher degree of adherence to group belief than those from Low T-S ratio schools This is indicative of higher social morale of students from high T-S ratio schools. In other words, high T-S ratio was found to favour higher social morale than low T-S ratio.

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Parents' Education and Social Morale

Parents' education was another factor studied in this research. In order to examine its effects, the educational levels of mothers and fathers were treated separately into two categories : (i) High i.e. Graduate and Postgraduate degree holders and (ii) Low i. e. below graduation. t - tests were applied to these data as well. The results of these tests along with mean scores on all five measure are presented in Tables 4 and 5. From these results it appears

Table 4 .

Mean scores and ts obtained for students with High and Low levels of Father's Education of Five Measures of SMI.

Level of Education	Constitutional Scale	Home adjustment Scale	Personal Social Adjustment	Personal Societal Adjustment	Social Belief
High	89.22	71.30	79.20	70.53	43.56
Low	86.45	67.36	75.41	70.73	43.12
t	1.14	2.10	1.76	0.15	2.58
df	357	357	357	357	357
p	< 0.40	< 0.05	< 0.01	n.s	< 0.01

Table 5.

Mean Scores and ts obtained for students with High and Low Levels of Mother's Education on Five Measures of SMI.

Level of Education	Constitutional scale	Home Adjustment scale	Personal social Adjustment	Personal Societ Adjustment	Social Belief
High	89.31	70.33	78.34	69.02	44.35
Low	88.27	71.06	78.16	71.68	43.43
t	0.56	- 0.49	0.13	- 2.58	1.35
df	363	363	363	363	363
p	n.s	n.s	n.s	0.01	0.20

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that differential educational level of fathers made significant differences in Home Adjustment and Social Belief category and that of mothers made difference in Personal - Societal Adjustment only. It may be noted that higher level of father's education favoured Home adjustment and Social Belief whereas Personal Societal adjustment was found to be higher with lower level of mother's education.

Monthly Family Income and Social Morale

On the basis of student's reported family income the students were divided into two categories - one having high level of income (Tk. 3.000 and above) and the other having low level of income (Below Tk. 3.000) Results of t-test applied to these data along with means are presented in Table 6. It shows that level of family income was a very

Table 6.

Mean scores and ts obtained for students with High and Low levels of Income on Five Measures of SMI.

Income	Constitutional scale	Home adjustment scale	Personal Social Adjustment	Personal Societal Adjustment	Social Belief
High	91.30	72.56	79.16	71.30	44.69
Low	86.15	69.44	77.01	68.34	42.98
t	2.58	2.08	1.28	2.39	2.25
df	312	312	312	312	312
p	< 0.01	< 0.05	< 0.02	< 0.02	< .05

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important variable determining students' social morale . Of the five measures, siginficant differences in scores according to level of income were obtained in four measures. In other words, except personal social preference, high level of income favoured all other measures of social morale.

Table 7 shows the mean scores and the results of t-tests of boy's and girls' scores on five measures of SMI. It appears from this Table that sex is relatively an unimportant variable as boys and girls did not differ significatly on any one of the five measures of SMI.

Table 7.

Mean Scores and ts obtained for Boys and Girls on Five Measures of SMI.

Sex	Constitu-Tional Scale	Home Ad-justment	Personal Social Adjustment	Personal Societal Adjustment	Social Belief
Boys	89.73	69.73	78.81	69.42	45.51
Girls	86.96	71.49	76.58	71.00	43.42
t	1.56	1.28	1.43	1.68	– 0.13
df	376	376	376	376	376
p	< 0.10	< 0.20	< 0.20	< 0.10	n.s

Discussion

A primary purpose of this research was to develop a norm for interpretation of individual scores on Social Morale Inventory. Refering to this norm and the average scores on each of the five measures of SMI compared to maximum possible scores it appears that the students, in general, had a high trend of morale. Although the study intended to include students from some more districts covering urban and rural population, it was not possible for some practical difficulties. It is, therefore, recommended that in the next revision of the norm, proper care should be taken to make the sample representative of the population.

Another purpose of this study was to identify some factors related to social morale. The factors investigated were teacher-student ratio, parent's education, family income and sex of students. Of these factors, teacher-student ratio was found to be the most important one in determining social morale of school chiildren. High morale was found to be associated with high teacher-student ratio. An obvious reason for this is that, since the teachers are proportional to the students, they can give proper attention, care and guidance which help develop a sense of worthiness and make the students feel themselves an important part of the community and society they live in, This helps in heightening their morale. On the basis of the present findings, it may be recommended that the ratio between the number of teachers and students be kept high so that morale of students may be heightened.

Parental education, especially mother's educational level, was not found as important as it was expected, Father's education was found to be positively related to home adjustment and personal social adjustment measures of morale. But mother's education was not

positively related to any one of the five measures of SMI. On the contrary, students having mothers of lower level of education showed significantly higher regard towards the existing trends of educational, legal and economic system of the country. Father's educational level did not make any difference in this regard. It should be noted here that parental education influences social morale of individuals through a number of variables like parent's attitudes, personality characteristics, child rearing practices etc. It is. therefore, necessary to explore these variables mediating social morale.

With regard to income, it was found that students coming from higher income level score significantly higher than those coming from low imcome group on constitutional, home adjustment, personal societal and social belief category of SMI. This indicates the importance of family income as a determining factor of scocial morale. The possible reasons for this is that children brought up in well-do- do families usually get better facilities that may make them optimistic, confident and well adjusted which is indicative of high morale. Lower level of family income, on the otherhand, may make the children develop an unfavourable attitude toward self and society which may turn them into apathetic or persimistic individuals. Again it should be emphasized that it is not money per se, but the environment that is created differentially due to this factor that makes differences in morale. It is, therefore, necessary to do research so that the exact mediating variables are revealed.

Finaliy sex was not found to be an important variable. That is being boys or girls did not make any difference in any of the five measures of social morale. This finding is consistent with the findings of Das Gupta (1976) who also failed to see any sex difference in morale.

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Social morale is not a static phenomenon. It is susceptible to change. It is, therefore, necessary to identify factors associated with high or low morale so that favourable changes may be ensured. The present study is and humble endeavour in this regard. It is needless to say that further research is necessary to explore many other factors determining morale. It is also necessary to explore the nature of interaction among factors determining social morale. It is hoped that more research would be carried out in future to throw more light on this very vital social phenomenon which is at the root of our national development.

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SOCIAL RESPONSIBILITY AND DEPENDENCE PRONENESS IN INDIAN AND BANGLADESHI MEN AND WOMEN

Sultana Banu

and

Biranchi N. Puhan [1]

The trait of social responsibility refers to helping others when there is nothing to be gained from them (Berkowitz & Lutterman, 1980). Recent reseraches on altruism have attempted to identify factors that influence this behaviour. Of all, culture has been identified as one of the major factors contributing to persons' social responsibility. It was revealed in a study that village mothers in Rajput families differed from those in Okinawa in teaching socially responsible behaviour to their children (Triandis & Hitchcock : cited in Mussen, 1970). The other important factor which seems to affect social responsibility is the sex of the subject. Although sex has been found to be associated with the intention to help others, controversies still exist as to which of the two sex groups is socially more responsible. for example, Berkowitz and Lutterman (1968) have found that females score significantly more on a social responsibility measure than males. On the other hand, in some situational tests males were found to offer help more often to the distressed persons than the females (Piliavin, Rodin, & Piliavin, 1969; Wispe & Freshley, 1971).

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Dependence proneness is dercribed as the tendency to rely on someone else for assistance and assurance (Johnson & Medinnus, 1965). Like social responsibility, dependene proneness has been found to be influenced by one's culture. For example, studies have shown that American emphasis on early independence training was not shared by the New Guinea tribe (Whiting & Child, 1953) and Puerto Riccan parents (Landy, 1959). As to the sex of the subject, Kagan and Moss (1960) have observed that passive and dependent behaviour remained stable over years among women and not necessarily among men.

Burt (1971) has suggested that favourable social conditions are more important than the physical factors for determining the model personality of a nation. He further stated that this model personality may undergo considerable changes as a result of technological, educational, and economic developments. In India, economic developments and modernization of technologies have started soon after its independence in 1947. In Bangladesh, however, things have not been so smooth in both political and economic fronts. Though it was a part of India until 1947 and of its eastern province of Bengal-Bihar-Orissa until 1911, Bangladesh achieved its full political and economic independence from Pakistan in 1971. Moreover, since their independence, the people of Bangladesh have experienced the horrors and sufferings of serveral armed revolutions which are likely to affect their personality quite differently from Indians. But no attempt has yet been made to identify the differences in personality traits of people belonging to these two countries. The present study, therefore, attempted to comare the social responsibility and dependence proneness of Indian and Bangladeshi males and females.

Method

Subjects

Fifty Arts graduate students (25 males and 25 females) were randomly drawn from Utkal University, India, to participate in the present study. A similar sample was also selected from the University of Dhaka, Bangladesh. The mean and SD of age of the Indian students were 21.40 and 1.64 and for Bangladeshi students were 22.42 and. 66.

Testing Instruments

Social Responsibility (SR) Scale (Berkowitz & Lutterman, 1980) : This scale consists of eight statements, the responses to which indicate one's behaviour in various social situations. Half of the statemenst are written in positive direction and the other half in negative direction. The responses to these statements range from "strongly agree" through "undecided" to "strongly disagree". The SR scale has been constructed on the basis of the item analyses with samples of college students and is claimed to have "very satisfatory" internal consistency (Berkowitz & Lutterman, 1968).

Dependence proneness (DP) Scale (Sinha, 1975) : This scale consists of 50 items, the responses to which are made on a Likert-type scale raniging from "quite true" through "undecided" to "not at all true", The split-half reliability and validity coefficients of this scale were found to be ·67 and ·20, respectively.

Procedure

Following the standard instructions in respective manuals, the Social Responsibility and Dependence Pronenes scales were administered to the students in

small groups. The responses to the scales were then scored following the respective scoring keys (Berkowitz & Lutterman, 1969; Sinha, 1975).

Results and Discussion

The mean and standard deviations of social responsibility and dependence proneness scores for different groups of subjects are shown in Table 1.

Table 1

Mean and Standard Deviation of Social Responsibility and Dependence Proneness Across Sex and Cultural Groups

		Indian		Banagldeshi	
		Male	Female	Male	Famale
SR	Mean	32.04	30.68	30.44	28.96
	SD	2.89	3.26	3.52	2.90
DP	Mean	64.76	69.12	64.84	70.00
	SD	6.31	8.14	11.66	6.24

A 2 (sex) X 2 (culture) analysis of variance on the raw scores of social responsibility revealed significant effects of both the main factors, [$F(1,96) = 4.86$, $p < .05$; $F(1,96) = 6.64, <.05$]. A similar analysis for dependence proneness raw scores recvealed significant effect only for sex, [$F(1,96) = 7.72$, $p < .01$]. The interaction effects of sex and culture in both the analysis were found not to be significant.

Both Indian and Bangladeshi males were found to be socially more responsible than their female counterparts (see Table 1). The results were found to be inconsistent with the findings of Berkowitz and Lutterman (1968) but lent support to the findings of Piliavin et al, (1969). It is a

matter of common observation that in both these societies males are entrusted with and are encouraged to take greater initiative in various activities relating to family and community As a result, they easily learn the values of individual initiative and self-reliance. On the other hand, the activities of females are generally limited to their immediate environment-serving or looking after their family member, etc. As a result, often they do not have opportunities to get involved in community and social activities.

It was also found that Indians scored significantly more ($p<.05$) on social responsibility scale than Bangladeshis. Berkowitz and Lutterman (1968) have already observed that educational background of a society determines the socially responsible behaviour of its fellow members. The percentage of literacy in Bangladesh is far behind that in India, particularly for females. This was perhaps the reason for Indians being more socialy responsible than Bangladeshis. Besides, Bangladeshi social values might have been affected by their armed revolution for independence. Also political turmoils since its independence might have alienated Bangladeshi youths from the mainstream of culture which, in turn, might have affected their social responsibility.

The scores on dependent proneness did not vary across the present cultural groups. But the mean scores of this trait were found to be significantly more ($p < .01$) for the females compared to males. Perhaps the subservient roles of the Indian and Bangladeshi women was responsible for such a difference. Modesty, passivity, dependency, and many such behaviours which are considered sex-appropriate for females in both India and Bangladesh are reinforced throughout their development. On the other hand, the opposite of these behaviours are

considered sex-appropriate for males of Indian subcontinent. Significantly higher dependence proneness scores of females, therefore, are quite expected in these cultures. The results also agree with the earlier studies in which social pressures for independence were found to be more for males than for females (Kagan & Moss, 1960).

Childhood in Indian subcontinent is considered to be longer (Sinha, 1975). Moreover, children and younng adults in these countries are often denied full Western style independence until at least they are through with their studies and start working. It is no wonder, therefore, that the students of India and Bangladesh who served as subjects of the present study were found to be equally dependent prone.

The present study was based on small samples. Moreover, Indian samples were drawn only from the state of Orissa and can hardly be considered representative one. Further studies with larger and different subcultural samples are therefore needd before more meaningful comparisons can be made across Indian and Bangladeshi cultures.

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A STUDY OF CERTAIN PERSONALITY VARIABLES IN STUDENT ACTIVISM *

Shawkat Ara

The participation of students in national movements and political activity is not entirely a novel phenomenon. Students have played a major role in stimulating unrest and fostering change in many countries. Special role of students has been noted in West-European Revolutions of 1948, in Russian Revolutionary movements, in Chinese movements, and in different fascist's movements in Italy, Germany and Spain. In many colonial and developing states and in various communist courtries, since 1956 student activists have become instrumental. It has been observed by several writers (Altbach, 1968; Omar, 1973, Talukder, 1977, Sinha, 1980; Ara, 1983) that student activists guided by the ideals of socialism, Marxism, and modern secular political thinking have intluenced profoundly the freedom movements of these countries. In the context of these observations it has been thought that student activism might perdispose some personality traits that work as stimulating factors in the functional relationship in student activism. As Greenstein (1968) observed, "political behaviour can be explained only if we have an account of the personal psychological variables that mediate between the stimuli of politics and resulting behaviour". A large number of research (George and George., 1956; Lane, 1962, Rogow 1963, Edinger 1965, Wolf and Stein, 1967) has attempted to give analytical description of political behaviour on this dimension and

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effort has been made to develop typological literature best represented by the works of an authoritarianism, (Adorno et. al 1950) dogmatism (Rokeach, 1960) and Internal External control (Rotter. 1966). The resent study was proposed to investigate the effects of personality variables on the student activism using such dimensions as authoritarianism, dogmatism and Internal External control. Hence the study utilized Kool's(1980) adapted version of authoritarian F-Scale, Hasan's (1974) adaptation of dogmatism scale and Rotter's (1975) original IE control scale for investigating patterns of personality differences in student activists.

Method

Subjects

Sixty Undergradnate and post-graduate students of Rajshahi University Rajshahi College and City College belonging to either left (N=30) or ritght (N= 30) student organizations were selected by using Activism criteria Questionnaire developed for this purpose. Right wing subjects were the members of such organization as Islamic Chattra Sibir and Left-wing subjects belonged to student organization like Bangladesh students Union (pro-Moscow and pro-Chinese). In addition 30 neutral students who did not show affiliation to any political organization were selected and designated as nonactivists. These 90 male students constituted the sample of the study.

Measure of Authoritarianism

In order to assess the personality characteristics of the subjects Kool's (1980) adapted authoritarian scale was used. This scale was translated into Bengali by the

investigator. The scale measures authoritarian attitudes which express submissiveness towards individuals possessing higher status and domineering toward the individuals who possess lower status. This scale contained 23 items. Subjects were required to respond to each statement by indicating their agreement-disagreement on a 6 point scale. The possible range of score on this scale was 23 (23 × 1) to 161 (23 × 7), the former indicating strong non- authoritarian attitudes and the latter indicating strong authoritarian attitudes. The split half reliability of the Bengali version of authoritarian scale was .84. The correlation of the translated Bengali version of the scale with Kool's scale was .88.

Measure of Dogmatism

In order to assess individual's differences in openness or closedness of organization of belief disbelief system, the present investigator used Hasan's (1974) adapted D-Scale after its proper translation into Bengali. This scale contained 34 items. The score for each response of the items was weighted 1, 2, 3, 4, 5, 6, and 7 . The total scoring of the responses for each subject ranged from (34 × 1) = 34 to (34 × 7) = 238 indicating former as the lowest dogmatic attitudes and the latter as the highest dogmatic attitudes. The odd-even reliability of the Bengali version scale was .82 and the correlation of the present translated Bengali version with the Hasan's adapted scale was .92.

Procedure

Pre-selected subjects were approached individually by the investigator and they were requested to participate in the study. The subjects were informed that the research was being conducted to study the personality differences

of individuals. The respondents took keen interest in filling up the questionnaire. Each test was administered to the subjects with an interval of one week to avoid the effects of response set. The duration of each session to fill up the questionnaire was about half-an hour.

Results

The mean, standard deviation, median and correlations were calculated for scores obtained on different tests. The 't' was computed to ascertain the significance of the difference on test scores. One percent level of significance was taken as the basis for deciding if the obtained differential in test scores was true or merely due to chance variations. Intervariable correlations were also computed to see the strength of relationship among the factors.

Authoritarianism differentiated the rightists from leftists and nonactivists. The t-value was significant at .01 (Table 1).

Table 1

Authoritarianism and student activism.

	Rightist	Leftists	Nonativists	Group	t-value
Mean	109.96	97.86	102.46	R&L	4.01**
SD	10.62	12.26	13.49	R&NA	2.35**
Median	110.41	97.68	100.75	L&NA	1.36

** $p<0.01$

The highest mean scores of the rightists showed that they are more authoritarian than those of the leftists and nonactivists.

Dogmatism variable differentiated significantly the rightists and leftists from non activists (Table 2).

Table 2

Dogmatism and student activism.

	Rightist	Leftists	Nonactivists	Group	t-value
mean	142.9	142.13	129.9	R&L	0.16
SD	28.69	15.68	19.44	R&NA	2.46**
Median	146.64	140.75	125.21	L&NA	2.64**

**P<0.01

The high mean value for the activists (i.e. rightists and leftists) suggested that they were more dogmaitc than the nonactivists. This variable appeared to be signiffcantly associated with student activism.

Table 3

Internal-External Control and student activism.

	Rightist	Leftists	Nonactivists	Group	t-value
Mean	9.68	9.63	10.1	R & L	0.12
SD	3.13	3.21	3.2	R & NA	0.28
Median	9.17	8.62	10.16	L & NA	0.55

Both the rightists and leftists were found more internally controlled in comparison to nonactivists on I-E dimension, but the t- values were found nonsignificant (Table -3).

Intervariable Correlations

To ascertain the associative effects of personality variables on student activism intervariable correlations of authoritarianism, dogmatism, I-E control and activism were computed on the total sample (N = 90) using Pearson's product moment correlations (Table 4).

Table 4

Intervariable correlations of authoritarianism, dogmatism, I-E control and activism (N = 90).

	Authoritarianism	Dogmatism	I-E control	Activism
Authoritarianism		.24**	.21*	.19*
Dogmatism			.12	.34**
I-E control				.21**
Activism				

**p <0.01

* p <0.05

The result indicated (table 4) positive and significant correlations of authoritarianism with dogmatism ($r = 0.24$, $p < 0.05$) and I-E control ($r = 0.21$, $p < 0.05$). Though the relationship between dogmatism and I-E control was found positive ($r = 0.12$) it did not achieve the level of significance. Activism was found to obtain significant and positive correlations with authoritarianism and dogmatism and negative significant correlation with I-E Control.

Discussion

The results of the present study clearly support the view that the particular personality pattern of the individuals is related to their ideological orientation which are the causative factors of activism. Personality measures of authoritarianism, dogmatism, and internal-external control were administered to the groups of rightists, leftists and non activists to find out their associative effects on ideological differences. Analysis of data on authoritarianism revealed that the rightists were highly authoritarian and significantly differed from the leftists and nonactivists. This high authoritarian pattern of the

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righitsts has its support in psycho-analytic theory as explained by Horkheimer (1949). According to this theory, the authoritarian character is the effect of social repression. In order to achieve internalization of social control, the superego assumes an irrational aspect regarding the individual's attitude towards authority. This brings into play the sadomasochistic impulse structure both as a condition and as a result of social adjustment. Thus the individual achieves his own social adjustment by taking pleasure in obedience and subordination. Moreover, traditionally the rightists are in favour of status and hierarchical society. Psychoanalytic explanation reveals that the authoritarianism represents a social class characterized by obedience and subordination. In this stndy the leftists had been found to be lowest in authoritarianism. This low scoring by the leftists has been termed by Brown (1947) as a protest against the high scorers of rightists who represent high authoritarianism. This determinant of low authouitarianism is psychological rather than rational. They are forced by rigid superego demands to protest against social repression. Being guilt ridden by superego demands they exhibit a secularization of religious authority (Adorno et, al 1950) and regard the minority groups apriori as victims.

Analysis of data on dogmatism showed that both rightists and leftists scored significantly higher as compared to nonactivists. These findings are in accordance with the findings of Rokeach (1960) who argued that both rightists and leftists are dogmatic in the structural sense of ideology. The difference between rightists and leftists are based on their contents only. Rightists give emphasis on racial supremacy and the leftists, aim is to establish classless society and to promote human welfare. But both the groups adopt

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dogmatic attitudes in establishing their goals for ideological supremacy.

The results, furthermore, show that the rightists and leftists are a little bit more internally controlled than the nonactivists. This finding is understandable from the social learning theory (Rotter, 1954, 1975). The theory postulates that there are stable personality differences between individuals in their generalized attitudes of attributing locus of control. These differences have influenced upon higher level learning effecting behavior in a wide variety of problem solving situations. Consequently internals believe that behaviors are capable to bring about desired goals but the externals perceive little connection between their behavior and desired outcomes. Rightists and leftists being political persons make an effort to bring about changes in their environment through personal initiatives. Non-activists, on the otherhand, are non political persons and make little effort to change the environment at the cost of their personal gain.

Furthermore, in the present study the correlational results did reveal that the personality factors like authoritarianism, dogmatism and I-E control variables appeared to be closely related to student activism. Considered in its macro perspectives, the intervariable correlations are indicative of the fact that dogmatism attained highest positive correlation (r = .34) with student activism. This result is explainable with Rokeach's (1960) closed belief disbelief system. The conservative rightsts had their eye to the traditional past and they never bothered about the present and future, But, on the other hand the radical left activists always used to talk about the future. Both the extreme groups are found to have closed

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attitudes about the present. This result has been supported by many recent studies (Austin, Panos and Greager, 1967; Heist and Somers, 1965, Bhusan, 1969; Hasan, 1974, etc.) Austin et. al, found the relationship between student activism and personality variable. In their study activists were more aggressive, outgoing and more inclined to perceive themselves as being characterized by leadership ability, potential liberalism and originality.

In conclusion, the findings of the results suggest that the particular personality patterns of the activists (i.e rightists and leftists) may exert enormous influence on the formation of attitudes and thus resulting activistic behavior according to the requirements of the social situations of a nation.

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A CROSS-CULTURAL STUDY OF INTERPERSONAL VALUES*

Hamida Akhtar Begum

Although individuals are unique in many ways, each person is essentially a product of his culture. His attitudes, values and behaviour are largely determined by the society in which he is brought up. As such similarities and differences are inevitable within and between cultures. In order to have a better understanding of these similarities and differences in attitudes, values, and behaviour and their impact on personal and interpersonal adjustment, behavioural scientists have long been interested in cross-cultural research. The present study is an humble attempt of such a cross cultural researeh. The present study is an humble attempt of such a cross-cultural comparison of interpersonal values deemed important in determining interpersonal relationship.

In Bangladesh, there has been very little cross-cultural research. One of the studies done was in the area of premarital sexual attitudes(Perlman, Josephson, Hwang, Begum & Thomas 1978) in which comparisons were made among American, Canadian, Malaysian, and Bangladeshi samples. In general, the latter were found to be more restrictive in sexual attitudes compared to the American, Canadian and even Malaysian samples.

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* Presented at the Third Asian Regional Conference of International Association for Cross-Cultural Psychology at the National University of Malaysia, during May 2-5, 1983.

From *Dhaka Univ. Studies* (Part A), 1985, Vol. 42(2), 113-120.
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Much of the cross-cultural researches have focused on the differences in personality, attitudes and values of the oriental and western people. Berrien's (1966) study is such an example in which he employed EPPS to assess needs of American and Japanese students. This research has shown that American male students tended to score higher on needs for deference, achievement, and dominance where as Japanese male students tended to score higher on needs for abasement, change, and endurance. American female students tended to score higher on needs for deference, achievement, affiliation, dominance, and nurturance whereas Japanese female students tended to score higher on need for endurance.

The question of similarities and differences between value systems was also explored by McClelland and others (1958). The study revealed that the American boys had higher need for achievement than their German counterparts but there was no significant difference in the need for affiliation scores of the two groups. While American boys were found to be more involved with their peer groups, the German boys seemed to have prefered individulistic activities.

In another study, Milgram (1961) showed the variations in conformity among French and Norwegian students under various experimental conditions. The data point to the greater independence on the part of the French students than the Norwegians.

All of the above studies have important implications in the study of behaviour. Such cross-cultural studies have been and are being conducted to help the behavioural scientists to have a better understanding of man's behaviour and enable them to offer a more scientific

explanation of interpersonal and inter-group relationships.

In interpersonal relationship or adjustment, a person's values play a very important role. To what extent a person values conformity, recognition, support, independence, benevolence, or leadership determine the way he interacts or adjusts with other persons around him. Research of this author and her associate (Begum and Khanam, 1983) has revealed that similarity in all of these interpersonal values (measured by Gordon's Survey of Interpersonal values, 1960) is important in friendship. In view of the importance of these values in interpersonal relationship the present study was designed. The purpose of this research was to observe similarities and differences in interpersonal values of the people in two cultures-East and West. In addition, sex differences in these values were explored along with cross-cultural comparisons.

Method

The Sample

The sample consisted of 129 college students (89 males, 40 females) of 17 to 20 Years of age. Of the total sample, 70 (51, males, 19 females) were from a college of Dhaka city in Bangladesh and 59 (38 males, 21 females) were from a college at Montreal, Canada.

Instrument used: Survey of Interpersonal Values (SIV)

Gordon's SIV (1960) measuring six interpersonal values viz, Support, Contormity, Recognition, Benevolence and Leadership, was used for assessing differences in interpersonal values between cultures and also between two sexes. Since the student samples in Bangladesh were not as comfortable in English as those in Canada, they were administered a Bengali version of SIV (Begum and

Khanam, 1983) which was valid and reliable. The Canadian samples were admintistered the English version of SIV.

The SIV consisted of 90 items presented in a forced choice format of thirty sets of three statements or triads. Each respondent was instructed to indicate what is 'most important' and 'least important' statement to him/her in each set. Scoring was done with a hand overlay key. Higher scores indicated higher trend in each interpersonal value. The SIV scales were originally developed through the use of factor nanlysis and were found reliable and valid. Following are the definitions of the scales:

Support (S): Being treated with kindness and consideration.

Conformity (C) : Doing what is socially correct, following regulations closely, doing what is accepted and proper, being a conformist.

Recognition (R) : Being looked up to and admired, being considered important, attracting favourable notice, acheiving recognition.

Independence (I): Having the right to do whatever one wants to do, being free to make one's own decisions, being able to do things in one's own way.

Benevolence (B) : Doing things for other people, sharing with others, helping the unfortunate, being generous.

Leadership (L) : Being in charge of other people, having authority over others, being in a position of leadership of power.

Procedure

The sample colleges in Montreal and Dhaka city were first contacted by the author and in accordance with mutual convenience, schedule for administering the SIV was prepared. In Montreal, one of the colleagues of the

author and in Dhaka a research fellow of the author administered the SIV. Both of them were given detailed instructions regrding administering the SIV. Accordingly, they approached the students, gave a brief introduction to the Scales, read the printed instructions with illustrations and administered the SIV. On completion of answering the questionnaire, they were thanked for participation.

Results

In order to examine whether interpersonal values differ as a function of culture and sex, the respondents' scores on each of the six interpersonal values were separately analyzed by 2 × 2 Analysis of Variance. Results ot these analyses are presented in Tables 1 to 6. Mean scores of male and female samples in Canada and Bangladesh are also show in Table 7.

Cultural Differences in Interpersonal Values

The results revealed significant cultural differences in two interpersonal values viz., Conformity (Table 2) and Independence (Table 4). The main effects of culture in Conformity ($F = 26.97$); $df = 1,125$; $p < .001$) as well as in Independence ($F = 11.82$; $df = 1,125$; $p < .001$) were highly singnificant. It may be seen from Table 7 that in Independence both male and female samples of Canada scored significantly higher than those of Bangladesh. In Conformity, on the other hand, both male and female samples of Bangladesh scored higher than those of Canada. In other words, students from Bangladesh were found to be less independent and more conforming in their interpersonal values than those from Canada.

With regard to support, the mean score of the Canadian sample ($\bar{X} = 19.17$) tended to be higher than that of Bangladeshi sample ($\bar{X} = 15.81$). No signficant

differences between cultures were observed in other interpersonal values viz., Recognition (Table 3). Benevolence (Table 5) and Leadership (Table 6).

Sex Differences in Interpersonal values

Male and Female students were found to differ significantly in two interpersonal values-Benevolence (Table 5) and Leadership (Table 6). The main effect of sex was significant in Benevolence ($F= 5.97$; $df = 1,125$; $P<.025$ as well as in Leadership ($p = 6.096$; $df = 1,125$; $F<.025$). Table 7 shows that in both cultures females showed higher scores on Benevolence than males. In contrast, males were found to score significantly higher on leadership than females in both cultures. That is, the females were found be more benevolent and less leadership oriented than their male counterparts.

No significant difference in sex was observed in other interpersonal values viz., Support, Conformity, Recognition and Independence nor was there any significant interaction between sex and culture in any one of the six interpersonal values. The absence of interaction indicates that the effect of sex did not vary as a function of culture.

Table 1.

Summary of the Analysis of Variance for Support scores of Male and Female Students in Two Cultures

Source	df	MS	F
Sex	1	2.90	1.11
Culture	1	8.79	3.37*
Sex X Culture	1	.41	.61
Within Cells (adj)	125	2.61	

*p<.001

Table 2.

Summary of the Analysis of Variance for Conformity scores of Male and Female Students in two Cultures

Source	df	MS	F
Sex	1	.02	.006
Culture	1	81.18	26.97*
Sex X Culture	1	1.26	.42
Within Cells (adj)	125	3.01	

*p<.001

Table 3.

Summary of the Analysis of Variance for Recognition scores of Male and Female Students in Two Cultures

Source	df	MS	F
Sex	1	1.14	.57
Culture	1	2.87	1.43
Sex X Culture	1	4.26	2.12
Within Cells (adj)	125	2.01	

Table 4.

Summary of the Analysis of Variance for Independence scores of Male and Female Students in Two Cultures

Source	df	MS	F
Sex	1	00	00
Culture	1	45.03	11.82*
Sex X Culture	1	3.87	1. 02
Within Cells (adj)	125	3.81	

*p < .001

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Table 5.

Summary of the Analysis of Variance for Benevolence scores of Male and Female Students in Two Cultures .

Source	df	MS	F
Sex	1	14.47	5.79*
Culture	1	2.18	.87
Sex X Culture	1	7. 22	2.89
Within Cells (adj)	125	2.497	

*P< .025

Table 6.

Summary of the Analysis of Variance for Leadership scores of Male and Female Students in Two Cultures

Source	df	MS	F
Sex	1	18.57	6.096*
Culture	1	6.55	2.15
Sex X Culture	1	.63	.21
Within Cells (adj)	125	3.046	

*P<.025

Table 7.

Mean Scores of Interpersonal Values of Mele and Female Students in Bangladesh and Canada.

	Interpersonal Values											
	Support		Conformilty		Recognition		Independence		Benevolence		Leadership	
Culture	M	F	M	F	M	F	M	F	M	F	M	F
Bangladesh	15.18	17.53	18.47	19.42	11.47	12.47	17.29	15.32	16.24	17.37	10.94	7.42
Mean	15.81		18.73		11.74		16.75		16.54		9.42	
Canada	18.79	19.85	10.58	9.28	11.84	8.71	22.02	24.00	12.08	18.57	14.29	9.19
Mean	19.17		10.12		10.73		22.72		14.39		12.4	
Mean	16.72	18.75	15.10	14.10	11.50	10.63	19.31	19.88	14.46	18.00	12.37	8.35

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Discussion

The results of this study have revealed that the Canadian students differed from the Bangladeshi students in two interpersonal values-Conformity and Independence. Bangladeshi sample was found to be more conforming and less independent in their values compared to the Canadian sample. Having greater Conformity on the part of the Bangladeshi students means that they valued more being a conformist, doing what is socially correct, accepted, and proper, than the Canadian sample. The Canadian students, on the other hand, valued more being able to do things on their own way, being free to make their own decisions, and having the right to do whatever they want to do, compared to the Bangladeshi students. The findings are as expected, considering the cultural trends of these two societies in child rearing practices. From the very childhood children in Bangladesh are taught to conform to what elders say and be obedient to the parents and other superiors. This has, perhaps, been at the root of greater conformity of the Bangladeshi sample of students. In North America, on the other hand, children learn to be independent. The child rearing practices at home as well as education in school favour independence rather than dependence. These differences in independence training in two cultures may be noted as the possible reason for the difference in independence in two samples from Bangladesh and Canada. Further research is suggested in this direction to provide evidence in this regard. It is important to note that the two cultural groups were similar in many interpersonal values viz, Support, Recognition, Benevolence and Leadership. This suggests that social influences may not have been as differential as

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to bring about cultural differences in these interpersonal values.

Another finding of this research was the difference between two sexes in two interpersonal values viz., Benevolence and Leadership. Males in general scored higher on Leadership and lower on Benevolence than females no matter whether they were Bangladeshi or Canadian. It is important to note that the pattern of sex differences in interpersonal values was similar in both cultures. The observations that the females value Benevolence more than males and that males value leadership more than females are consistent with the expectations and social norms of the two cultures. In both cultures parents as well as society in general expect males to be leadership oriented and females to be soft hearted and benevolent in nature.

In other interpersonal values such as, Support, Conformity, Recognition and Independence, males and females were not found to differ significantly. This was true to both cultural groups. In another study of this author (1983), however, Bangladeshi males were found to be significantly stronger in Independence in addition to Leadership, and the females were found to be stronger in Support than their opposite sex. Although such differences were not observed in this study (besides Leadership), the mean scores of these values of the Bangladeshi sample were in that direction. It should be noted here that the samples studied in this research were not large enough to make conclusive statements. Further research is necessary. The author wishes to continue this research with larger samples on various cultural groups and explore some factors related to differences in

interpersonal values. Such research is expected to throw more light on the cultural differences as well as sex differences in interpersonal values and help understand the dynamices of the effects of culture on these values.

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INDIVIDUAL RISK TAKING AND RISKY SHIFT AS A FUNCTION OF COOPERATION-COMPETITION PRONENESS OF SUBJECTS *

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Researchers have explored personal factors, such as age, sex, personality factors and the situational variables derermining risk-taking. Stoner (1961) discovered that individuals come to advocate higher degrees of risk following group discussion than they had previously advocated in private. A shift towards greater risk following group discussion on choice dilemmas has been observed in a number of subsequent studies. (Wallach et. al., 1962; Teger and Pruit, 1967; Pruit and Teger 1969). This phenomenon has been termed as 'risky shift'.

Although risky shift has been observed in many studies, there are instances where conservative rather than riskier decisions were taken following group discussion (Schein 1965; Barnland, 1959; Jahan and Begum (1977). To account for these differences, attempts have been made to identify the factors such as group size, stress, persuasiveness etc. (Lieblich, 1968; Wallach et al., 1968). Many more factors are yet to be explored to explain the absence of risky shift. Since groups are composed of individuals, personal factors remain important in risk-taking in group situation as they are in individual situation.

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Of the manifold personal factors, personality characteristics have been of much interest to the researchers in this area. A review of these studies reveals that Achievement (McClelland and Watson, 1973; Rokusfalvy, 1972; Chauby and Sinha, 1972). Aggression (Begum and Dhar. 1984). Dominance (Michael and McDavid, 1972; Begum and Dhar, 1984), and Extraversion (Rim, 1966; Cutter, Green and Hardford, 1973) are positively related to risk-taking. Other characteristics of personality that are found to be negatively related to risk-taking are Rigidity and Conservatism (Myers, 1965), Affiliation (McClelland and Watson, 1973; Begum and Dhar, 1984), Nurturance, Deference and Abasement (Begum and Dhar, 1984). Persons high on achievement and dominance tend to be high risk-takers (McClelland and Watson, 1973; Michael and McDavid, 1972). Hence it follows that there may be a positive relationship between risk-taking and competitiveness. That is, competition prone persons are likely to take greater risk in their decision making. On the other hand, personality traits like Affiliation, Nurturance, Succorance, Deference and Abasement have been found to be negatively related to risk-taking (McClelland and Watson, 1973; Begum and Dhar, 1984). Cooperation appears to have a great deal of similarity with these traits. It has been observed in a study that cooperative persons tend to avoid risk (Marwell and Schmitt, 1972). This indicated that cooperation proneness may be negatively related to risk-taking. To put it another way, cooperation prone persons are likely to take lower risk.

Guided by this rationale, the present study attempted to observe risk-taking behaviour in individual as well as group situations as a function of subjects' 'Cooperation-Competition proneness' (Pareek and Dixit, 1974). Since sex

has often been found to be an important factor influencing decision making in both individual and group situations (Steiner, 1972; Brown, 1965; Jahan and Begum, 1977), this variable was also taken into account while studying the effects of cooperation competition proneness on risk-taking. To sum, up, the persent study was designed to observe the effects of cooperation competition proneness and sex of subjects on risk-taking in individual situation and risky shift phenomenon (i.e. the difference between group decision following discussion and the decision of each member in individual situation.) It was hypothesized that

1. Competition prone persons will take higher risk compared to the cooperation prone persons in individnal situation.
2. Male subjects will take higher risk than females in individual situation.
3. Groups composed of competition prone persons will show greater risky shift than the groups composed fo cooperation prone persons and the groups composed of neutral persons.
4. Groups composed of all male subjects will show greater risky shift than those composed of all female subject.

Method

Subjects

The *Ss* were 80 male and 80 female students of Class X randomly drawn from three different schools of Dhaka City. Their age ranged from 14 to 16 years.

The Cooperation-Competition Proneness Questionn aire, developed by Pareek and Dixit (1974), is a semi-projective

test consisting of five items, each having three alternative responses indicating cooperation, competition and neutral tendencies. The questionnaire was translated into Bengali from English. In order to examine the reliability to the Bengali version, 20 respondents were administered both the English and Bengali versions of the test at an interval of two weeks. Product moment correlation coefficient between the two sets of scores was + .89 Each item of this questionnaire described a class room situation to which three alternative action choices were there. The first one showed cooperation proneness, the second one competition proneness and the third a neutral tendency. Each response is scored either for cooperation. (1), or competition (1), or neutral (0) The maximum score, on either cooperation or competition could be 5 and the minmum could be 0.

A modified Bengali version of Wallach and Kogan's (1959) *Choice Dilemma Questionnaire* (Jahan and Jenkins, 1975) was used to measure risk taking behaviour. It consisted of ten problems, each requiring giving advice to hypothetical person faced with a difficult decision. The most risky response involved choice of an alternative with one-tenth chance of success. The other alternatives were 3, 5, 7 or 9 chances out of 10. The most cautious response was the choice of non-risky alternative. In all items the risky alternative involved a better outcome if it was successful. The items dealt with a wide range of topics including health, sports, politics, career choice and finance. A score of 5 experssed medium level of risk-taking for a subject. A score below this level indicated low level of risk-taking or conservatism and a score above 5 indicated high level of risk-taking.

Design of the study

The study followed a 3 x 2 factorial design repersenting three levels of cooperation competition proneness (i.e., cooperation prone, competition prone, neutral) and two levels of sex of Ss (i.e., male and female). Both individual risk scores and shift scores were treated in the same design.

Procedure

The study was conducted in two sepatate individual and group sessions. In the first session, all the Ss were administered the Cooperation Competition Proneness questionaire and the Choice Dilemmas questionnaire individually in the classroom situation. Approximately half of the Ss were administered the Cooperation Competition Proneness questionnaire first and the other half the Choice Dilemmas questionnaire first. The researcher introduced herself and stated briefly the purpose of her visit. After establishing proper rapport the questionnaires were administered with necessary instructions. The questionnaires had printed instructions; the researcher read them out and illustated them whenever asked to by the Ss. On the average, the Ss took two hours to complete both the questionnaires.

Following this, the Ss were divided into three categories on the basis of their scores on Cooperation Competition Proneness questionnaire: Cooperation prone, Competition prone, and Neutral. In all, there were 54 groups (52 were three-person and 2 were two-person groups) of the same sex. Of these 27 were male groups and 27 were female groups.

After one month all of the Ss were requested to take part in a group discussion. In this second session, each group was given a Choice Dilemma questionnaire and told

to discuss each problem and arrive at a decision which would represent their own group decision. Although there was no time limit, the groups were instructed not to take too long to arrive at decisions on the problems. On the average each group took $1\frac{1}{2}$ hours to complete the questionnaire. On completion of the choice dilemmas, the students and teachers concerned were thanked by the researecher for their cooperation.

Results

The risk taking scores in individual decision making situation were analyzed by a 3 x 2 Analysis of Variance. The results of this analysis are presented in Table 1

Table 1

Summary of the Analysis of Variance of Risk taking Scores in Individual situation as a function of Cooperation Competition Proneness and Sex of Subjects

SV	df	SS	MS	F
Sex	1	110.86	110.86	26.29*
Coop-Comp. Proneness	2	358.91	179.45	12.00*
SexXCoop. Comp. Proneness	2	18.67	9.33	0.55
Error	154	819.66	5.32	

** p Less than .01*

Table 1 shows that the main effect of cooperation competition proneness was highly significant. The competition prone *Ss* took the highest risk ($\overline{X}$ = 57.78), cooperation prone *Ss* took the lowest risk ($\overline{X}$ = 35.21) and the neutral *Ss* occupied the middle position ($\overline{X}$ = 41.89) These results confirmed the first hupothesis of this study.

The second hypothesis that male *Ss* will take higher risk than female Ss was also supported as the main effect of sex was significant ($F = 26.29$; $df = 1, 154$; $p < .01$) and the mean risk score for males ($\bar{X} = 82.30$) was higher than that for the females ($\bar{X} = 52.58$). The interaction between sex and proneness was nonsignificant.

In order to examine risky shift as a function of *Ss* cooperation-competition proneness and sex, the shift scores (i. e., the group risk score minus the individual risk score) of Ss were analyzed by 3X2 Analysis of Variance. The results of this analysis are shown in Table 2.

Table 2

Summary of the Analysis of Variance of Risky Shift Scores as a function of Cooperation Competition Proneness and sex of Subjects.

SV	df	SS	MS	F
Sex	1	26.00	26.00	1.33
Coop - Comp Proneness	2	107.20	53.60	5.93*
SexXCoop. Comp. Proneness	2	26.53	13.27	0.66
Error	154	684.44	10.22	-

** p less than .01*

It is evident from Table 2 that the main effect of cooperation competition proneness was highly significant. The competition prone *Ss* were found to show maximum risky shift ($\bar{X} = 31.67$) and the cooperation prone Ss showed the minimum risky shift ($\bar{X} = 16.29$) while the neutral *Ss* ($\bar{X} = 20.50$) were in the intermediate position.

The nonsignificant main effect of sex and sex $\bar{X}$ Cooperation Competition proneness interaction indicated that sex of *Ss* was not a significant variable determining

risky shift. The hypothesis that males will show greater risky shift than females was not supported.

In short, cooperation competition proneness was found to be a significant determinant of individual risk-taking as well as risky shift. Sex of Ss was found to be significant in risk-taking only in the individual situation. The effect of cooperation competion proneness on individual risk-taking as well as risky shift was similar for both male and female Ss.

Discussion

A major finding of this study is that risk-taking behaviour in individual as well as group situations is a function of an individual's proneness to cooperation or competition. This observation supported the findings of Marwell and Schmitt's study(1972) in which cooperativeness was found to be inversely related to risk-taking. The present finding has also been consistent with McClelland and Watson's (1973) observation that participation in open competition and taking greater risk go together. McClelland and Watson showed that such tendencies are positively related to high need achievement.

Another important finding of this study is that groups composed of competition prone Ss showed greater risky shift than the groups composed of cooperation prone Ss. The members of the competition prone groups became more competitive in group situation than they were in the individual situation. They created a group climate where all the members decided to take much riskier decision, and hence, a risky shift occurred.

Male Ss showed greater risk than the female Ss in the individual situation. This finding is consistent with the findings of a number of studies (Jahan and Begum, 1977; Steiner, 1972). However, no significant difference in risky

shift was observed between males and females. Further studies are necessary to explain sex difference in risk taking and risky shift.

In conclusion, it may be said that risk taking behaviour is determined by a number of variables of which cooperation competition proneness is one. This variable, again, is related to many other personality and social variables.

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MOTIVATION AND FERTILITY

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and

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Motives have been regarded as the immediate psychological factors responsible for any human or animal behaviour according to desired ways must depend upon the understanding of the motives underlying this behaviour. Though a large portion of the already existing research has been devoted to the study of socio-demographic variables related to fertility, little is known about the motivations working behind it. One of the reasons for this limitation of previous research may be the lack of participation of the psychologists who can handle the problem of motivation scientifically (Bogue, 1967). Another reason for the absence of motivational studies in fertility is the difficult nature of the problem itself. Recently some new techniques for scale construction for any psychological measurement have been suggested. But there has been very few attempts to apply these techiniques to the measurement of motivations particularly related to fertility.

Centers an Blumberg (1954) tried to study motives operating behind procreation, but their results were ambiguous. Rabin and Green (1968) s uggested, on the

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basis of sentence completion technique, the following motivational categories viz., altruistic, fatalistic, narcissistic and instrumental related to desire for children. Sorcar and Mia (1982) in a study on acceptance of family planning observed that family planning acceptors have a tendency to differ in terms of affection, economic help, preservation of family heritage and old age security. Bogue (1967) suggested that the following motives may be operating behind fertility, (1) health, (2) economic, (3) family welfare, (4) community and national welfare, (5) marriage adjustment, (6) personality needs, (7) ethical and cultural needs and (8) dislike for contraception.

Bogues' list of motives seems to be most exhaustive and relevant to our culture. Bogue has identified both profertility and antifertility elements in his proposed motivational categories and it is suggested that profertility elements in these motives encourage larger family size goals and antifertility elements smaller family size goals and lower fertility. But there has been no study in this country to examine these motives empirically.

The present study is an attempt to investigate how far health, economic, family welfare and ethical - cultural motivations, as suggested by Bogue, can discriminate women with higher fertility from those with lower fertility.

Objectives

The major aims of the study were to :

1. examine whether women with higher fertility differ from those with lower fertility in terms of motives;
2. examine whether women with higher family size goals (i.e desiring more children in future) differ from those with lower family-size goals in terms of motives;
3. find out the demographic and socio-economic variables related to pro and antifertility motives.

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Method

Sample

One hundered and sixty-six women of repoductive age were randomly selected from different residential areas of Dhaka city. All of them were married and currently living with their husbands. The age of the women ranged from 14 to 49 years, the average being 31 years. The respondents were interviewed at their homes by trained female interviewers- all of whom were students of the department of Psychology, Dhaka University.

Instruments

Relevant data were collected by using a standardized schedule consisting of two parts : one part contained the socio-demographic information of the respondent and the other part contained the motivation scale.

The motivation scale consisted of 38 Likert format items sub- divided into 4 sub-scales each concerned with a specific motive or them. The motives measured in the sub-scales are :

(1) Family welfare, (2) Health, (3) Economic, (4) Ethical and cultural.

All the sub-scales consisted of both antifertility and profertility items and could be answered as strongly agree, agree, disagree and strongly disagree. The antifertility items were scored between 4 (strongly agree) and 1 (strongly disagree). The profertility items were scored in a reverse manner. The responses to all items of a sub-scale were added together to give a total score for that sub-scale. The scoring system was such that higher scores indicated stronger antifertility motive and lower score indicated profertility motive. The motivation sub-scales have been presented below :

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1. Family Welfare Motive Sub-Scale

This scale consisted of ten items concerned with family welfare. Four items contained antifertility and 6 contained profertility themes. Antifertility items referred to happiness of the family, peace of the family, balanced personality growth of children. and tendency to avoid economic and social troubles associated with too many children. Profertility items, on the other hand, referred to utilization of children for domestic activities, and exercising power and influence on the society through large number of children. Scores of all ten items were added to give a summation score for the family welfare motive. Scores in this sub-scale ranged from 10 to 40

2. Health Motive Sub-Scale

This sub-scale consisted of ten items half of which contained antifertility and the other half contained profertility health items. Antifertility itemes referred to deterioration of health owing to large number of child birth, malnutrition of children of large family, better health care for small number of children, use of family planning methods as a legal means to protection of mothers' health. Profertility items included such themes as deterioration of health due to contraception, giving maximum number of child birth is good for health, and child mortality. Scores on this scale ranged from 10 to 40.

3. Economic Motive Sub-Scale

This sub-scale consisted of six profertility and three antifertility items. The antifertility items referred to themes like, economy in family exenditure, provision of food and education for the children, sub-division and fragmentation of land etc, Profertility items contained themes like greater income to family through children's earnings, economic support from children, old age

security, preservation of family property and heritage etc. Endorsement of these themes would lead to larger family size goals and higher parity. Scores on this sub-scale ranged from 9 to 36, higher scores indicating stronger antifertility motivation.

4. *Ethical and cultural Motive sub-Scale*

This sub scale consisted of seven profertility items and two antifertility items. Profertility items referred to themes like, "God will feed as many mouths as He brings to earth". dependence on God for number of children, contraception is a kind of killing a child, large number of children helps learn good discipline and morality, preference for boys to girls, etc. Antifertility items referred to themes like equal preference for boys and girls, and small number of children is an aid to give adequate opportunities to children to grow up properly. The same scoring system was followed for the items of this sub-scale as in other sub-scales. Scores of this sub-scale ranged from 9 to 36.

All of the scales were standardized. In the process of standardizing the scales, all items were distributed to 15 teachers of psychology department of Dhaka University. They were instructed to judge whether the content of the items were relevant to the particular motive. The construct validity of the scales was ensured by taking the items which had high inter-judge agreement. Items having agreements lower than 60 percent were omited. Reliability of the sub-scales, estimated by split half method, on a sample of 20 individuals, ranged from .67 to .80.

Results

Motivation and Family Size Goals

In this theoretical frame work of profertility and antifertility motives, it was implicit that women with

higher motivation scores would be inclined toward antifertility behaviour and would tend to have smaller family size goals. In other words, women with higher family welfare, health, economic and cultural motivations would desire less number of children than those scoring lower on these motives. This assumption was tested by Chi square test. All women were categorized into two groups-women having larger family size goals (desiring more than three children) another having smaller family size goals (desiring less than three children) Motivation scores were dichotomised in the median. The results of this analysis showed that there was a significant correlation between motivation scores and desired number of children. The chi square values between the motives and family size goals are as follows : family welfare motive 10.61, df 3, $p < .05$, Health 13.08, df 3, $p < .01$, Economic motive 9.74, df 3, $p < .05$, Ethical- cultural 16.41, df 3, $p < .001$.

Thus it is evident that women scoring high on these motivations desire smaller number of children.

Motivation and Parity

In order to examine whether women with higher and lower parity differ in terms of motivations, their scores on all sub-scales were compared against parity i. e. number of living children. Since age is correlated with parity, a 2x2 analysis of variance for motivation scores was computed for two levels of parity and two levels of age. Women were divided into two groups : one group having less than three children and another group having three or more children. Similarly, they were divided into two groups by age levels; those aged 29 years and below and those aged 30 years and above. The results of the analysis of variance is presented in Table 1.

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Table 1

F Ratios between motivation scores, parity and age levels

Motivation	Levels parity (A)	Age Levels (B)	Interaction
Family welfare	18.68***	6.87*	2.94
Health	7.11**	1.81	12.29***
Economic	13.96***	5.22*	0.31
Ethical - cultural	19.91***	5.91*	1.27

df = 1,163 ***p < .001, ** p < .01 and *p <.05 levels

Analysis of motivation scores by levels of parity and age showed that mean motivation sub-scales were significantly different for different levels of parity. Mean motivation scores were found to be higher at lower levels of parity suggestions-an inverse relationship between the two variables. A similar relationship was observed between age and motivatoin, except in case of health motive on which there was a significant interaction effect of age and parity.

Motivation and Contraception

All women were asked about their practice of contraception : and were categorized as ever and never users of contraception, Association between motivation scores and use of contraception at the two age levels (29 years and 30 years and above) was measured by Chi square technique. Chi square values show that none of the motives except ethical and cultural are significantly associated with the use of contraception.

However, high ethical and cultural motive was found to be positively associated with acceptance of contra-

ception in the younger age group (Chi square = 4.30, p <.05).

It is evident from the data that women are reluctant to use contraception even when they have high antifertility motivation and desire for small family size. Probably there are some social and situational barriers which prevent them from using contraception. It is further suggested that these barriers can be overcome only by those who are relatively younger and hold high ethical and cultural antifertility motivations. It is observed that women scoring high on four motives differ significantly in terms of parity from those scoring low on motivations.

Demorgaphic Correlates of Motivation

Age

Analysis of variance of motivation scores by age levels show that motivation scores are significantly influenced by age levels. Women at lower age levels have higher antifertility motivations. This is true for all types of motives except health motive where age has no significant effect (Table 1). It is evident from the study that younger women, in general, have stronger antifertility motivations compared to older women.

Education

In order to examine whether differences in levels of education produce any significant difference in motivation, an analysis of variance of motivation scores was computed for three levels of education. It was ovserved that cultural and family welfare motivations are significantly affected by education, but health and economic motivations are not (Table 2).

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Table 2

Mean motivation scores and F. Ratios among differaent levels of Education

Motivations	Levels of Education			
	Below SSC (N = 26)	SSC to below graduate (N = 66)	Graduate and above (N = 74)	F
Family welfare	30.62	33.61	33.05	3.86*
Health	30.20	31.10	32.05	2.03
Economic	27.54	29.16	29.60	2.99
Ethical and Cultural	27.12	30.13	29.92	27.24**

*p<.05, **p<.001 level, df 2, 165.

Income

Motivation scores on each of the four sub-scales were examined against four income groups e.g. below Tk. 1000 per month, Tk. 1001- 3000, Tk. 3001 - 5000 and Tk. 5001 and above. Analysis of variance of motivation scores by income groups did not show any significant variations in motivation according to income levels except in case of family welfare and economic motive. Family welfare motive was found to be influenced by levels of income, People in the higher categories of income had higher family welfare motivation scores. (Table 3). Similar was the case with economic groups had stronger economic motive.

Table 3

Summary of Analysis of Variance for Motivation Scores by Income Groups.

Motives	MS between Income groups df = 3	MS within groups df = 162	F
family welfaae	3273.66	84.19	38.88**
Health	25.02	16.24	1.54
Economic	42.74	12.77	3.35*
Ethical-cultural	65.21	28.07	2.32

***p.<001. *p<.05

Discussion and Conclusion

The study showed that economic, health, family welfare and ethical-cultural motivations played significant roles in determing fertility behaviour of women. Women scoring high on these motives endorsed antifertility themes, had smaller family size goals and actually had smaller number of children. Profertility elements in these motives have been found to be associated with larger family size goals and actually had smaller number of children. Profertility elements in these motives have been found to be associated with larger family size goals and larger number of children.

An examination of mean motivation scores at different levels of parity revealed that mean motivation scores on all sub-scales were higher at lower levels of parity, thus suggesting an inverse relationship between the two variables. A similar relationship was also observed between age and motivation. Woman in the younger age group had stonger antifertility motives except health, where there was a significant interaction effect between age and parity. It is possible that younger women have been more exposed to and influenced by mass media campaigns conducted by the government whereas the

older women have already reached a desired family size and have a traditional set of values and beliefs which are less susciptible to change by communication media.

Stronger health motive was observed in younger women and consequently they had smaller number of children. But older women with larger number of children also showed strong health motive. It may be suggested that in the younger ages women having strong health motive tend to limit fertility in order to preserve their own and children's health, but in the olders ages, ill health coupled with large number of child-births make them more sensitized to health needs.

Analysis of fertility regulating behaviours by levels of motivation showed that none of the motives except ethical and cultural one had significant association with use of contraceptive methods. But it is interesting to note that ethical and cultural motivation plays a decisive role in the use of contraception. It was observed that women scoring high on ethical and cultural motives tend to accept contraception even at a lower age, but in the higher age groups (30 years and above) this motive was not associated with contraception. This may be explained by the fact that after the age of 30 years. most women have alredy achieved a large family and use of contraception is meaning less for them. It may be further argued that there are strong social and cultural barriers in our country which prevent women from using contraception even when they have strong antifertility motives, and these barriers can only be overcome by younger women who hold strong antifertility ethical and cultural norms.

It has been observed that education is positively correlated with antifertility motivation. Women with higher education are found to have higher ethical and cultural motives which, in turn, motivate them to accept contraception even with fewer number of children.

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The profertility elements in health, family welfare, economic, and ethical and cultural motives are, of course, rooted in Bengali culture (Maloney et al, 1980). These motivations may be modified through providing formal education to all women upto a certain level and through intensive motivation communication campaigns emphasising the antifertility themes. Another strategy for reducing the profertility elements in these motives may be to introduce modernization processes in the society through formation of women's organiaztions, mothers' clubs, etc, and creating opportunities for participation of women in development activities of the country. All of these proscesses may encourage development of stronger antifertility motivations which in turn will reduce fertility in Bangladeshi women.

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SOCIO-ECONOMIC AND DEMOGRAPHIC CORRELATES OF FEMALE ROLE PERCEPTION AMONG WOMEN IN BANGLADESH *

Quazi Shamsuddin Muhammad Ilyas

Psychologists and sociologists are giving considerable attention for studying sex role or male-female role perception, A number of studies have examined the relationship of the various socio-economic and demographic variables to sex role perception (SRP), especially the female role perception (FRP) (Baruch, 1972; Kutner and Brogan, 1974; Lipman -Blumen, 1972; Mason & Bumpass, 1975; Meier, 1972; Scanzoni, 1979; Steinman & Fox, 1970; Tomeh, 1978). However, these findings cannot be generalized for two important reasons. First, most of the research has been carried out in the United States and thus has a limited cultural perspective, Second, almost all the studies have used college samples which are fairly homogeneous in FRP. It is expected that sampling from a more heterogeneous population than a college group in other countries may yield different results, This is why, in the current research, the sample was selected from a more heterogeneous population. The sample comprised of working and non-working women from urban and rural areas of Bangladesh. The respondents also varied widely in age, education, occupation and income. It was hoped that the present investigation in Bangaldesh would be helpful in throwing light upon the cross-cultural aspects of the findings in the area. With this expectation the study

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was designed to examine the relationship of certain socioeconomic and demographic variables with FRP.

In the present study, attitudes related to normative conception of appropriate behaviour of females is defined as female role attitude and responses related to the role attitude is conceptualized as female role perception. The specific objective of the study was to examine the relationship of FRP with place of residence, family type, age, number of children, monthly income, work experience, occupation and education.

In view of the above objective the following hypotheses were tested in the current research:

1. Women who reside in urban areas would score higher on FRP (i.e., would be more nontraditional or liberal in their Sex Role Attitude) as compared to those who reside in rural areas.
2. Women who are members of nuclear families would score higher on FRP as compared to those who are members of joint families.
3. Women who are younger in age would score higher on FRP as compared to those who are older in age.
4. Women who have fewer chilren would score higher on FRP as compared to those who have more children.
5. Women whose families have higher monthly income would score higher on FRP as compared to those who have lower monthly income.
6. Women who are working would score higher on FRP as compared to those who are nonworking.
7. Women whose parents are working would obtain higher scores on FRP as compared to those whose parents are nonworking.

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8. Women who have more education would score higher on FRP as compared to those who have less education.
9. Women whose (i) parents and (ii) husbands belong to higher education level group would score higher on FRP as compared to women whose parents and husbands belong to lower education level.

Method

Subjects

The subjects were 1480 women from urban and rural areas of Bangladesh. They were selected from Dhaka, Comilla and Rajshahi districts by stratified random sampling. The variables of stratification were (a) place of residence (unban/rural) and (b) work experience (working/nonworking). The strata-wise distribution of subjects was as follows: urban nonworking 326, urban working 422, rural nonworking 520, rural working 212. Age of respondents ranged from 15 to 85 years, with greatest number falling in the age category of 20-29 years. Educational background of respondents ranged from no school education (illiterate) to university graduation.

The data of the present study were collected from January, 1982, to May, 1982.

Instruments

One Personal Data Blank and one standardized Female Role Perception (FRP) Scale (Ilyas & Zaman, 1982) were used for data collection . Personal Data Blank gathered subjects' socioeconomic and demographic information and the FRP Scale measured Female Role Perception, FRP scale consists of two parts, The first part includes 20 items

which include staements, dealing with adult female role situations, particularly related to family, occupational and social life, These items are all short statements expressing either a 'traditional' or 'nontraditional' female-role preference. Traditional preferences suggest that a woman's family responsibilities are more important than her personal career, her primary purpose is to be responsible for household and childcare tasks, subordinating her own interests to wellbeing of husband and family. Nontraditional preferences, on the other hand, stress equality between sexes and consider a woman's satisfaction and achievement equally important with those of husband and family.

The second part consists of two paragraphs. Paragraph A states that women should focus attention on home and family affairs, while paragraph B states that women should be equal to men in opportunities, pay and types of occupation chosen. Subjects were asked to respond to these items by selecting one of the five possible answers indicating their degree of agreement with the statement.

A subject's total score on the FRP scale was the sum of the scores on the two parts, Here, low total score indicates traditional attitude regarding the role of women, while a high total score represents nontraditional or liberal attitude.

Procedure

Data were collected through interview methods. All of the interviewers were given training in administering the Personal Data Blank and the FRP Scale to the

subjects. Aims and objectives of the present study were discussed with the interviewers at the outset of the training. All of the interviewers were females. They were Master degree holders or M.Sc. Final year students of Psychology or Social Work Department in the Dhaka University.

The instruments were administered individually by the intervewers to the selected samples by visiting their households. After establishing rapport subjects were interviwed. It was the interviewer's task to give necessary explanations or illustrations (especially for rural respondent) whenever the respondent asked for them.

Results

The results or this study are reported in terms of FRP means of various groups. However, in order to test the significance of difference between the groups, point-biserial or product-moment correlations were computed, which also enable us to see the differences in the extent ot relationship.

Table 1 shows that the mean FRP score for urban women (M=25.48) was higher than that or rural women (M=20.65). Significant point biserial correlation [rpbi (1478)=.3019,p < .01] between FRP and place of residence also indicate that FRP varies significantly according to place of residence (Table 4). Mean FRP score for respondents of nuclear families (M=23.53) is higher than that of joint families (M=22.17). Point biserial correlation [rpbi (1478)=.0792, p<.01] between FRP and family type is also significant (Table 4)

Table 1

Means and Standard Deviations of Female Role Perception Scores by Demographic Characteristics

(N=1440)

Demographic Characteristics	n	M	Sd
Place of Residence			
Rural	732	20.65	9.79
Urban	748	25.48	9.37
Family Type			
Nuclear	1003	23.53	9.74
Joint	477	22.17	10.12
Age (in years)			
15–19	197	20.89	10.03
20–29	642	24.08	9.61
30–39	367	23.59	10.12
40–49	182	22.88	10.10
50 and older	92	19.35	.84
Number of Children			
0–3	1040	23.87	9.97
4–7	369	21.35	10.04
8–11	67	20.67	9.11
12–19	4	22.75	8.84

Note : Low FRP Score = More Traditional
High FRP Score=More Non-traditional

Mean FRP scores for different age groups reported in Table 1 show that women who have age between 20 and 29 years have the highest mean FRP score (M=24.08), while women with age 50 years and above the lowest mean FRP score (M=19.35). Significant negative correlation [r (1478)= -.0459, p <.05] between age and FRP score in Table 4 indicates that older women are more traditional in female role perception.

Mean FRP score of respondents by number of children is presented in Table 1. It is found that women who have children ranging 0 to 3 have the highest mean FRP score (M=23.87). Significant negative correlation [r(1478)= -.1346, p <.001] between FRP and number of children confirm that women with smaller number of children are more nontraditional in FRP.

Observation of mean FRP score of different income groups in Table 2 reveals that women whose families have higher monthly income have more liberal FRP. Significant positive correlation. [r (1478) = . 1282, p < . 0001] indicates that income is positively associated with FRP (Table 4)

Table 2

Means and Standard Deviations of Female Role Perception Scores by Income

Total Monthly Income in Taka	n	M	SD
Less than 1000	785	20.81	9.97
1001–2000	383	24.51	9.24
2001–3000	152	26.76	8.20
3001–4000	65	26.88	9.57
4001 and above	95	27.78	9.08

Mean FRP scores. of subjects by their own and parents' work experience is presented in Table 3. As predicted, working women have higher mean FRP score (M=26.90) than nonworking women (M=20.24).

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Teble 3

Means and Standard Deviations of Female Role Perception Score by Work Experience

Work Experience	n	M	SD
Own			
Working	634	26.90	8.90
Nonworking	846	20.24	9.62
Father's			
Working	1365	23.05	9.87
Nonworking	115	23.65	10.03
Mother's			
Working	106	23.77	9.40
Nonworking	1374	23.04	9.92

Variability in FRP is less in working women (SD = 8.90) than in nonworking women (SD = 9.62). Significant point biserial corelation [rpbi(1478) = .4121, P < .01] between the FRP and own work experience (Table 4) confirms the hypothesis that working women are more liberal in FRP than nonworking women.

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Table 4

Correlations of Female Role Perception Score with Demographic and Socioeconomic Variables

Correlation between	Coefficient of Correlation
Point Biserial Correlation	rpbi
FRP and	
Place of residence	.3019**
Family type	.0792**
Own work experience	.4121**
Father's work experience	.0204
Mother's work experience	.0234
Pearson's Product Moment	r
Correlation between FRP and	
Age	-.0459*
Number of children	-.1346***
Total monthly income	.1282***

*P < .05

**P < .01

***P < .0001

'However, nonsignificant point biserial correlation between FRP and father's work experience, FRP an mother's work experience (table 4) indicate that parents' work experience was not related to daughter's FRP.

Table 5

Means and Standard Deviations of Female Role Perception score of Subjects by Occupation

Occupation	n	M	SD
High level professional	80	29.70	7.19
Semi-professiona	171	28.73	8.26
Administrative and managerial	37	30.76	6.46
Clerical and related	73	27.82	8.38
Technical and skilled ladour	106	26.22	9.30
Unskilled labour & domestic servant	130	22.90	9.55
Housewives	846	20.24	9.62
Others	37	22.81	7.69

Chi-squere between Female Role Perception an Occupation :

x^2 (14, N = 1480) = 225.90, p <.0001

Mean FRP score of respondents by occupation is represented in Table 5. Data reveal that women who are in administrative and managerial occupation have the highest mean FRP score (M = 30.76), while housewies have the lowest mean FRP score (M = 20.24). Women who are in high level professional occupation have second highest mean FRP score (M = 29.70). Significant chisquere [x^2 (14, N=1480) = 225.90, P < .0001] betwen FRP and occupation indicates that type of occupation significantly influences FRP (Table 5).

Among all socioeconomic and demographic variables, eduction is found to be the most important factor for female role "modernity". Data reported in Table 6 reveal that the higher the education the more liberal is the FRP. It is found that women with the highest educational qualification have highest mean FRP score (M = 29.81), while illiterate women have the lowest mean FRP score

Table 6

Means and Standerd Deviations of Female Role Perception Score by Education

Education Level	n	M	SD
Own Education			
Illiterate	430	18.61	9.27
Class I to Class V	356	21.51	9.60
Class VI to Class X	179	22.78	9.58
S.S.C./H.S.C.	299	26.76	8.63
Graduation and higher degree	216	29.81	7.71
Father's Education			
Illiterate	364	19.19	9.24
Class I to Clsaa V	388	21.66	10.30
Clas VI to Class X	190	23.76	9.52
S.S.C./H.S.C.	335	25.29	9.02
Graduation and higher degree	203	28.58	8.24
Mother's Education			
Illiterate	744	20.13	9.44
Class I to Class V	449	24.96	9.74
Class VI to Class X	215	27.68	8.49
S.S.C./H.S.C.	59	28.36	8.92
Graduation and higher degree	13	28.46	7.79
Husband's Education			
Illiterate	221	18.53	9.47
Class I to Class V	283	20.90	10.07
Class VI to Class X	149	20.90	9.03
S.S.C./H.S.C.	263	23.15	9.33
Graduation and higher degree	370	27.02	8.62
Unmarried women	194	25.80	10.06

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(M = 18.61). It is further observed that women with highest educational qualification have the lowest variability in FRP (SD = 7.71), while women with academic qualification category class I to class V have highest variability in FRP (SD = 9.60). Data of Table 6 furthermore indicate that the higher the parents' and husband's level of education, the more liberal are women's RRP. Highty significant $x^2 2$ results between FRP and education also indicate that own [$x^2 2$ (8, N = 1480) = 252.05, p< .0001], father's [x^2. (8, N = 1480) = 157.64, p<.0001], mother's [x^2 (8, N = 1480) = 154.38,

Table 7

Chi-Square between Female Role Perception and Education

Chi-square between FRP and	X^2
Own Education	252.05*
Father's Education	157.64*
Mother's Education	154.38*
Husband's Education	164.06**

Note : FRP is trichotomized as Traditional, Moderately Traditional, and Nontraditional. Education is Categorized as Illiterate, Class I to Class V, Class VI to Class X, S.S.C./H.S.C., Graduation and Higher Degree.

* P < .0001, df = 8
** P < .0001, df = 10

mother's [x^2 (8,n= 1480 = 154.38, P < .0001] and husband's [x^2 (10, N = 1480) = 164.06, p <.001] educational qualifications are the determining factors for making women liberal in FRP.

Discussion

Results of the study showed that female role perception is related to several socioeconomic and demographic variables. It was found that urban women were more nontraditional in FRP than rural women. Illiteracy of most women in rural Bangladesh (Rabbani, 1984) might be an important reason for their being traditional in FRP. Moreover, the males in rural Bangladesh treat women only as housewives and clearly differentiate female role from male role. These in turn might have made rural women traditional in FRP. But higher educational background of urban women and their exposure to urban life might be responsible for making them nontraditional in FRP.

Data on family type and FRP revealed that the respondents of nuclear families were more nontraditional in FRP than those of joint families. The argument is that in a joint family elderly people are present and they transmit traditional values to its younger members. Moreover, in a joint family presence of both sexes in greater number encourages role differentiation concept rather than role sharing.

Significant negative correlation between age and FRP indicated that younger women were more nontraditional than older women. But this relationship was not strictly linear. Young women of age 5 to 19 years were a bit traditional. However, nontraditional FRP reached its peak by the age of 20 to 29 years and then gradually declined thereafter. Guardianship of parents or husbands in young age might be responsible for traditional FRP in young women. When this guardianship goes, they become liberal. Again, they become traditional with increasing age. Traditional FRP of older women in Bangladsh can be justified on the grounds that 20 years back women's

education was not accepted so widely as compared with the modern time. Hence, many women who are at present 40 years of age and above did not have higher education and are likely to be conservative in FRP.

Data on number of children and FRP indicated that women who were childless or had a small number of children tended to favour nontraditional roles. Absence or smaller number of children made men's attitude liberal towards sex role differentiation (Tomeh, 1978). This in turn might make women nontraditional in FRP

Results of the study confirmed the hypothesis that women whose families had higher monthly income would have more liberal FRP. Higher income is related to higher educational background. Studies have shown that education has made women liberal in Sex Role Attitude (Brogan & Kutner, 1976: Mason & Bumpass, 1975). Generally, income of a family becomes higher when both husband and wife are working. Previous researches have shown that wife's work involvement has made her less traditional in sex role attitude (Scanzoni, 1979; Zaman, 1978). The results of the study also showed that working women were more nontraditional in FRP than nonworking women. Wives' employment reduces their economic dependence on their husbands and makes them less confined to household activities. They engage in non-traditional roles. Moreover, wives' work involvement outside home changes husbands' traditional sex role outlook. Husbands agree to share household duties, childcare and other activities with their wives. Husbands' positive attitude might be a reason for development of nontraditional FRP of wives. the present study did not find any significant relationship between parents' work experience and daughter's FRP. However, prior studies on Sex Role Attitude and parents' work experience have given

contradictory results. Some studies have shown that daughters' sex role values have been affected by the mothers' pattern of employment outside of home (Meier, 1972; Nye & Hoffman, 1963; Vanfossen, 1977; Vogel, Boroveoman, Broverman, Charkson & Rosenkrantz, 1979), while other studies have shown no relationship between mothers' employment and SRA of daughters (Brogan & Kutner, 1976; Lipman-Blumen, 1972).

Findings of the present study revealed that type of occupation bears a significant relationship to FRP. It was found that women in administrative and managerial occupation were the most nontraditional in FRP, while housewives were the most traditional in FRP. It was also observed that women in high level job were nontraditional, while women in low level job were traditional. It can be argued that women who were in high level job were also highly educated and their higher educational background might make them nontraditional, whereas women in low level job get poor wages. The low wages reduce reward from outside job and as a result they develop preference for childcare and domestic work. This, in turn, yields influence on the development of traditional FRP.

Results of the present study indicated that education was one of the most important factors for making women modern in role perception. It was found that women with the highest educational qualifications were most nontraditional, while illiterate women were the most traditional. It was observed that the higher the education the more liberal was the FRP. A few other studies have also shown similar results (Bayer, 1975; Brogan & Kutner, 1976; Mason & Bumpass, 1975, Scanzoni, 1979). Results of the present study further indicated that parents' and husbands' level of education were positively associated with nontraditional FRP of women.

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FORMS AND CONSEQUENCES OF ALIENATION : A STUDY OF PEASANTS, INDUSTRIAL WORKERS AND STUDENTS

Sheikh M. Shahidullah

It is through the Marxist notion of alienation that relationship between psychology and the theory of mass society was most explicitly explored by Erich Fromm[1] and Herbert Marcusc[2]. Alienation as a concept has serveral advantages. Apart from the fact that it is a potential vehicle for the formulation of an in-depth theory of social behaviour the concept of alienation has an interdisciplinary character. It makes it convenient for investigators to examine the link of human action with socio-structural and cultural factors. Social scientists, in both empirical[3] and nonempirical studies, have used this concept to explain such diverse phenomena as political apathy[4], prejudice[5], marketing orientation[6], status striving[7], and so on. However, these studies were carried out mostly in the western industrial societies were modernization had been consolidated long before. It might

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From *Dhaka University Studies* (Part A), 1988, 45 (1), 19-25
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1 Erich Fromm.,*The Sane Society* (New York : Holt, Rinehart & Winston, 1955).

2 Herbert Marcuse, *Eros and Civilization* (Boston : Beacon Press, 1965).

3 For example Adorno et al. *The Authoritarian Personality* (New Yourk : Harper and Brothers, 1950.

4 M. Rosenbeg, "The Meaning of Politics in mass Society," *Public Opinion Quarterly*, 15, 1951.

5 Adorno et. al. *The Authoritarian Personality.*

6 Erich Fromm, *The Sane Society.*

7 C. W. Mills, *White Collar.* (New York: Oxford University Press, 1951).

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be of interest to see of such relationship between alienation and social action holes true for a developing (or underdeveloped [8]) society like that of Bangladesh.

In Bangladesh we frequently come across complaints about mass apathy and inaction from both bureaucrats and radicals who advocate for and want to steer people's action toward certain social change. Assuming that the prevalence of such a stagnant condition of social development we seek is true, in this study,* we shall attempt to see empirically how far the pathogenic symptom of "alienation" is characteristic of this society and of its various demographic sections. It is also our objective to see if and how the various symptoms of alienation are related to certain social engagement pattern considered as serious sociopsychological impediments to social development.

Alienation is assumed to originate from man's loss of control over his productive activity and product because of restrictions (in modern society imposed usually by man on man) inherent in particular form of society. Such lack of control or freedom stands as an obstacle to finding meaningful relations with the surrounding world and people and consequently to self- fulfilment. In this process man becomes alienated from his productive activity (and product), from society and from the self [9].

For empirical reasons, we have conceived of alienation in four of its component dimensions as proposed by

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8 See A. G. Frank, "The Development of Underdevelopment", *Monthly Review*, New York, September, 1966.

9 Karl Marx, Economic and Philosophic Manuscripts, trans, T.B. Bottomore, In Erich Fromm (ed)., *Marx's Concept of man* (New York ; : Frederick Ungar, 1961. See also Mills, White Collar.

* The study was financed by the UGC, Bangladesh.

Seeman[10] . These are the felt states of "powerlessness" i.e. lack of control over the reinforcement man seeks for himself and for the society; "meaninglessness" i.e. low expectancy that satisfactory preduction about future outcomes of behaviour can be made; "work alienation" i.e. lack of ego satisfaction from one's work; and "normlessness" i.e. operating in a situation in which rules regulating individual conduct have broken down[11] .

Thirteen social engagement tendencies pertaining to one's political, cultural, religious, recreational and personal life were examined individually in their relationship to alienation. These tendencies, mostly self-defining, are "unwillingness for voting" "disinterest in political discussion" "lack of participation in political gathering" "lack of organizational membership," "disinterest in art and culture" "non-commitment to religion" "disinterest in sports and recreational activities," "dependence on experts," "dependence on technology", "lack of initiative to know more about one's work and the nation," "fatalism", and the "sense of social isolation." The primary criterion for the selection of these behavioral tendencies was their higher relevance to social change with the assumption that they will vary positively with alienation.

Method

The Sample

A total of 608 adult male respondents composed of 204 peasants, 169 industrial workers, and 235 students were

10 M. Seeman, "On the Meaning of Alienation". *American Sociological Review*, 24, 1969.

11 See also R. K. Merton, Social Theory and Social Structure (Glencoe. 111 : Free press, 1949).

interviewed individually by two trained interviewers. The sample was more of a purposive nature but is considered to be fairly representative of the respective sections, The peasants interviewed were inhabitants of three villages in the district of Khulna, The industrial workers were interviewed at three industrial sites of the country namely, Tongi, Tejgaon and Khalishpur. The student respondents beloged to the University of Dhaka, the Bangladesh University of Engineering and Technology, and to colleges in the city of Khulna.

Interview Aids

Prestructured questionnaires were followed for the interview. The overall "alientation" scale of Middleton[12], The "powerlessness" (IE) scale by Rotter[13] and the "work alienation" scale by Seeman[14] were translated and adapted in Bangla. These scales have the background of being translated and used repeatedly in several cultures with comparative validity. The adapted Bangla versions were examined by several judges. Given the relatively abstract nature of the item contents the judges did have almost perfect agreement on the applicability of the scales in the local context. Dean's [15] and Srole's [16] scales were followed as guidelines for construction of the

12 R. Middleton, "Alienation, Race and Education". *American Sociological Review.* 28, 1963.

13 S.C Rotter, "Generalized Expeetancies for Internal Vs. External Control of Reinforcements "*Psychological Monographs,* 80, 1966

14 13. S.C Rotter, "Generalized Expeetancies for Internal Vs. External Control of Reinforcements" *Psychological Monographs,* 80, 1966

15 D. G. Dean, "Alienation : Its Meaning and Measurement" *American Sociological Review.* 25, 1961.

16 L. Srole, "Social Integration and Certain Corollaries : An Exploratory Study". *American Sociological Review,* 21, 1956.

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"meaninglessness" and the "normlessness" scales respectively. However, the items constructed for this purpose were duly evaluated by a panel of expert local judges.

The split-half reliability coefficient of the different scales corrected by Spearman-Brown prophecy formula were found to be as follows: work alienation (0.68) powerlessness. (0.58). meaninglessness (0.76), normlessness (O.52), Pearson's product-moment intercorrelations of these scales with overall Middleton alienation score were as follows : work alienation (0.43), powerlessness (0.10), meaninglessness (0.72), normlessness (0.42). Besides these scales, the social engagement tendencies were probed by direct questioning and the answers were recorded as response to single question in each case.

Results

An analysis of the variance of the obtained data reveals that the three groups of respondents- peasants, industrial workers, and students-- differ at a highly significant level on their mean scores on overall alienation as well as on the other scales for work alienation, powerlessness, meaninglessness, and normlessness. As shown in Table 1, in all cases the computed value of F turned out to be significant at a level lower than 0.0005. On all the scales industrial workers appeared to be the most alienated while students expressed the lowest level of alienation, However, on measures of overall alienation, work alienation, and meaninglessness the difference of students with either of the other two groups was more prominent than that between the peasants and the workers.

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Table 1

Mean and F - value of scores for the different variables of peasants, industrial workers, and students

Variables	N	Mean				F	F
		Total	Peasants	Industrial Worders	Students	.0005	
Overall alienation	608	11.74	12.45	12.56	10. 21	69.55	7.60
Work alienation	578	16.11	16.24	17.76	14.32	107.22	7.60
Powerlessness	597	13.44	13.36	14.31	12.66	51.39	7.60
Meaninglessness	601	9.04	9.86	10.25	7.01	185.79	7.60
Normlessness	600	10.27	10.09	10.83	9.90	9.34	7.60

Demographic differentials of alienation and its different forms, age and family income were examined for each of the three groups of sample. Other demographic variables examined were as follows : education and land ownership status (landowner, sharecropper or agricultural labourer) for peasants; education and plant composition (one unit or multiple units) for industrial workers; and father's occupation, family residence (capital city or outside)and faculty of study (science and technology, humanities & social sciences or commerce) for students.

For both industrial workers and students the various forms of alienation appeared to be relatively undifferentiated demographically[17]. In the case of students only[18] the following three variables emerged as significant differentials. First, higher age was found to go with high work alienation[19] . Second, commerce students followed by those of science and technology showed more the feeling of meaninglessness than humanities and social science students. Third, students having family

17 Details of figures are excluded for space consideration.
18 At .01 level for Chisquares.
19 With a Gamma = 2.26

residence outside the capital city displayed more the symptom of normlessness than those from within the city.

For industrial workers, only family income emerged as a considerable differential. High alienation and high normlessness were found to go with low family income.[20]

Demographic characteristics came out as systematic differentials for the various forms of alienation comparatively more for peasants than the other two groups. For all forms of alienation excepting normlessness, lower landownership status was found to go strongly with high alienation (Table 2). Similarly, lower family income tended to be strongly related to high overall alienation, work alienation, and meaninglessness.

Table 2

Gamma coefficients of alienation and its component syndromes for the various demographic characteristics of peasants.

Demographic Charactersstics	Overall alienation	Work alienation	Powerless-ness	Meaning-lessness	Normless-ness
Age	—0.002	0.01	—0.34	—0.11	—0.14
	(0.001)	(n.s)	(n.s)	(0.05)	(0.05)
Education	—0.22	—0.10	—0.03	—0.24	—0.07
	(n.s)	(n.s)	(n.s)	(0.05)	(n.s)
Family income	—0.37	—0.53	—0.18	—0.57	—0.12
	(0.05)	(0.001)	(n.s)	(0.001)	(n.s)
Landowership	—0.15	—0.70	—0.24	—0.44	0.24
status	(0.001)	(0.001)	(0.01)	(0.001)	(n.s)

( ) = level significance for Chi square;
n. s. = not significant.

As expected, low education tended to be connected with a higher sense of meaninglessness. Older peasants

20 The Chi squares were significant at 0.01 level in both the cases; The Gamma cooficients were — 0.35 for alienation and — 0.20 for normlessness.

also tended more to have the feeling of overall alienation, meaninglessness, and normlessness than others.

High overall alienation, as is revealed in Table 3, was significantly related to reported disinterest in political discussion, lack of participation in political gathering, disinterest in art and culture, disinterest in sports and recreation, dependence on technology, lack of initiative to seek information about one's work and the nation, fatalism and sense of social isolation. These relationships were obviously in the expected direction. Unwillingness for voting, lack of organizational membership, and dependence on experts did not show any significant relationship with alienation even though the Gamma coefficient for the last one was considerable. Contrary to expectation, non-commitment to religion tended to have a distinctive negative relationship with alienation and its various forms.

With very few specific exceptions the above pattern of relationship between alienation an social engagement tendencies was found to hold for the different forms of alienation excepting in the case of normlessness. One notable exception needing explanation was that reported unwillingnes for voting tended to have a considerable negative relationship with powerlessness and strongly so with meaninglessness. Another such exception was that the sense of social isolations even though strongly related to alienation did not appear to have any decisive relationship with its various component forms.

Conclusion

As revealed by the foregoing findings the level of various forms of alienation differed for the three groups of sample. Industrial workers followed closely by peasants appeared to be the most alienated. Comparatively lower exposure to alienation of students may be explained by the fact that in this society they enjoy more freedom of choice

because of parental support, more stable family background and higher enlightenment. Industrial workers and peasants are equally impoverished but the former's working condition is more alienating due to lack of autonomy and personal meaning.[21]

Impoverishment as an important determinant of alienation is also supported by the finding that peasants who are landless or have lower family income are more alienated than others. Familly income was found to have considerable inverse relationship with the alienation of workers too. Within-group educational difference, probably being less prominent, failed to come out as a differentital of alienation. Thus although there were differences among the three broad demographic groups so far as within-group differences are concerned, alienation seemed to be a general and all pervasive phenomenon in this society.

The sample as a whole appeared to be quite high in alienation. Such a climate of general lack of control over personal as well as social destiny is probably conceivable in the local socio- historic condition characterised by continued external domination and exploitation and the absence of any successful reform or revolution. Given the suitable impulse this general sense of boredom and uselessness may be translated either into social upheaval[22] leading to change or conformity orientation[23] leading to the maintenance of the system culminating in total social servitude. But this is a matter of further study.

Reported social engagement tendencies that are considered pathogenic and non-contributory to

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21 See Mills, White Collar; and Fromm. *The Sane Society.*

22 M. Seeman, "The Signals of '68 : Alienation in Pre-crisis France.' *American Sociological Review*, 37, 1972.

23 From. *The Sane Society.*

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Table - 3

Gamma Coefficient of alienation and its component forms with the various social engagement tendencies.

	Unwillingness for voting	Disinterest in political discussion	Lack of participation in political gathering	Lack of organizational membership	Disinterest in art & culture	Noncommitment to religion	Disinterest in sport & recreation	Depenence on experts	Dependence on technology	Lack of initiative to know about work	Lack of initiative to know about nation	Fatalism	Sense of Social isolation
Average % of Alienated responses	10	46	52	69	41	18	27	36	59	30	38	70	64
Overall alienation	-0.09 (ns.)	0.28 (0.001)	0.13 (0.001)	-0.02 (n.s)	0.57 (0.001)	-0.31 (0.001)	0.41 (0.001)	0.21 (n.s)	0.18 0.05	0.20 (0.001)	0.23 (0.00)	0.45 (0.001)	0.44 (0.001)
Work alienation	-0.11 (0.01)	0.31 (0.001)	0.07 (n.s)	-0.02 (n.s)	0.32 (0.001)	-0.17 (0.001)	0.36 (0.001)	0.13 (0.05)	0.27 (0.001)	0.33 (0.001)	0.28 (0.001)	0.45 (0.001)	0.02 (n.s)
Powerle- ssness	-0.22 (n.s)	0.13 (n.s)	0.09 (0.05)	0.07 (n.s)	0.12 (0.001)	-0.34 (0.001)	0.27 (0.001)	0.00 (n.s)	0.30 (0.001)	0.18 (0.001)	0.20 (0.001	0.42 (0.001)	0.19 (n.s)
Meaning- lessness	-0.47 (0.001)	0.37 (0.001)	008 (0.01)	0.04 (n.s)	0.41 (0.001)	-0.46 (0.001)	0.44 (n.s)	0.12 (0.001)	0.37 (0.001)	0.30 (n.s)	0.34 (0.001)	0.54 (0.01)	0.12
Norm- lessness-	0.14 (n.s)	-0.11 (0.01)	-0.06 (n.s)	-0.15 (0.01)	0.02 (0.001)	0.04 (n.s)	-0.01 (0.05)	-0.09 (0.01)	0.01 (n.s)	-0.15 (0.001)	-0.10 (0.001)	0.14 (0.001)	0.05 (n.s)

( )- level of significance for chisquare; n.s - not significant

meaningful social change such as disinterest in political discussion, lack of participation in political gathering, disinterest in art and culture and sports. dependence on technology over human power, apathy to see, knowledge about one's work and the nation, and fatalism were found to go systematically with alienation and its various forms. These relationships appeared to be highly conclusive and confirm our assumption that alienation breeds passivity at least in notmal time.

Strikingly, reported higher participation in religious activities was found to go with higher level of alienation and its different forms. Probably the highly significant positive relationship between fatalism and forms of alienation and the same between higher willingness for participation in the ritual of voting and sense of meaninglessness provide some clue towards the explanation of this striking revelation.

To conclude, the findings of the present study seem to support our hypotheses and their theoretical basis in the context of the present society. Nevertheless, this exercise is not intended to provide a final answer in such a complex area of inquiry but to serve as a starting point towards the explanation and redress of social pathologies that stand against genuine and self -sustained social growth from which we are moving away everyday.

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IV

Studies on Child and Adolescent Development

1. **Quazi Afifa Sultana**	:	A Study of Some Factors in Adjustment Patterns of Adolescent Boys and Girls in Bangladesh.
2. **Mohammad Mahmudur Rahman**	:	Class and Sex Differences in Sensorimotor Development Among Infants in Dhaka City on the Uzgiris and Hunt's Ordinal Scales of Psychological Development.
3. **Dilruba Afrose**	:	An Investigation of the Factors Related to Anxiety in Children.
4. **Muhammad Nazmul Haq**	:	Patterns of Adolescent Self-Image in Bangladesh.

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5. **Sultana Banu** : Quantitative Thinking as a Function of Age And Social Class.

A STUDY OF SOME FACTORS IN ADJUSTMENT PATTERNS OF ADOLESCENT BOYS AND GIRLS IN BANGLADESH.

Quazi Afifa Sultana

The problem of adjustment has become endemic as well as universal. From primitive time attempts are being made to explain the problem in terms of tension reduction, homeostasis, S, R, etc. The concept of "Open System" within General System Theory (Bertalanffy, 1968) states that adjustment is "beyond the homeostasis principle" since the S-R scheme misses the realms of play, exploratory behaviour, crativity, self-realization, and the equilibrum principle misses the fact that behavioural activities are more than relaxation of tensions. Such a new look opens new perspectives not only in theory but also in practical implication with respect to education, bio-chemistry, bio physics, physiology, personality in general and adjustment in particular. Man, within the general system theory, has been conceptualized as a complex adaptive system which is 'open' both internally and externally. Human adjustment is basically purposive transactional process as the individual lives in his family setting, engages in social relationships, matures emotionally, pursue vocations, advances educationally and grows into a both physically and mentally healthy adult.

From *Bangladesh J. Psychol.*, 1984, 7, 72-81. *Reprinted by permission of the author.*

A number of studies have been done on the adjustment of adolescents. Kundu and Mitra (1969) found a more or less "average" trend among adolescents in all areas of adjustment. Review of literature shows that adustment is dependent on family relationship (Landis and Stone, 1952; Liccoine, 1955), good health condition (Stolt, 1962a, 1962b; Palsane, 1970), emotionality (Kumer, 1973; Verma and Upadhyay, 1981), academic achievement (Chawla, 1970; Patel and Joshi, 1977; Saxena. 1979).

Sex plays an important role in the adjustment of adolescents. Adolescents have to accept the challenges of his new role and social expectations. There are evidences (Bhagia, 1966 ; Mehratra, 1966 ; Krishna 1982) that there is significant sex difference in adjustment and girls are better adjusted than boys.

Locus of control (LC) also has a significant effect on adjustment. The internal-external locus of control (I-E LC) is a generalized expectacy related to a person's belief concerning the locus of causality of events, existence of a contingent relationship between one's behaviour and the consequences. According to Rotter (1966) "When a reinforcement is perceived by the subject as following some action of his own behaviour or his own but not entirely contingent upon his action .... we have labelled this belief as external control. If the person perceives that the event is contingent upon his own behaviour or his own relatively permanent characteristics, we have termed this a belief as internal control" (p,1). There are evidences (Baldo et. al, 1975; Gilmor, 1978) that I-E LC beliefs are important mediators of adaptive functioning in adolescents. Internality is associated with instrumentality and expressiveness, a condition of good adjustment, and externality is associated with ineffectiveness and powerlessness, a condition of poor adjustment.

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One's adjustment with self and the world also depends to a great extent, upon one's purpose-in-life (PIL) i.e., the kind of meaning he ascribes to and gets for his existence. According to Frankl (1967, 1969), adjustment in terms of purpose-in-life (PIL), means actualization of one's creative, experiential, and attitudinal values. Man is responsible for his being. He must search the meaning of his existence.

The present study focuses on the adjustment pattern of adolescenents. Adolescence represent a period of adjustive crises (Marvin, 1955, Lazarus, 1959). Cronologically, it is the time span from 12 or 13 to early 20's. Psychologically, it is the 'marginal situation' in which new adjustments have to be made, psycho-socially, it is the "transition-period" from dependent childhood to self-sufficient adulthood. Bangladesh, which is, metaphorically speaking, in its adolescent phase, had to undergo many crises both in its pre-and post-independence phases. It is important to study how the adolescent goes with internal transition (bio-psychosocial transition that every adolescent goes through by virtue of being an adolescent) interacts with the life-settings which are also undergoing constant episodic changes. Do biological sex differences make any difference in the purposive interaction of the Bangladeshi adolescents with the environment ? Do the adolescents, in such life setting, believe in luck or skill? And how do their beliefs and expectancies effect their adjustive transactions? Are the Bangladeshi adolesctents aware of their values ? Do they strive for the actualization of their creative, experiential and attitudinal values ? Do different degrees of 'purpose' effect adjustment patterns of the adolescents differently.

In getting satisfactory replies to these questions and understanding the patterns and dynamics of adjustment

problems of the Bangladeshi adolescents, the present study, "A Study of Some Factors in Adjustment Patterns of Adolescent Boys and Girls in Bangladesh" represents an attempt in that direction.

METHOD

Sample

The sample comprised 1300 college students. Among them 631were girls and 669 were boys. They were taken randomly from Dhaka (N=489). Chittagong (N=315) Khulna (N=261, and Rajshahi (N=235).

On the basis of median split (Median = .09) of the I-E scores, two groups were formed i.e., the internal (from 0 to 09, N=692) and the external (10 and above, N=608). Further classification of the sample into four groups i.e., low PIL (from 0 to 94. N=332), moderately low PIL (from 95 to 106, N=329), moderately high PIL (from 107 to 116, N=321), high PIL (117 and above, N=318) were done in terms of quartile distribution of the PIL scores (Table 1).

Table - 1

Sample Distribution in terms of Sex, Locus of Control (LC) and Purpose In-Life (PIL)

		C1	C_2	C_3	C_4	Total
A_1	B_1	74	73	77	94	315
N=631	B_2	103	98	64	51	316
A_2	B_1	64	90	100	123	377
N=669	B_2	91	68	80	53	292
	Total	332	329	321	318	1300

A=Sex Difference (A_1 = Girls A_2 =Boys)

B=Locus of control (B_1 = Internal Locus of Control; B_2 = External Locus of Control)

C=purpose-in-life (C_1 = Low PIL ; C_2 = Moderately Low PIL ; C_3 = Moderately high PIL ; C_4 =High PIL

Tools

The following scales were used for the present study.

a. Internal-External Locus of Control (I-E LC) Scale.
b. Purpose-in-life (PIL) Scale.
c. Adjustment Inventory for College Students (AICS).

All of these scales were translated in Bengali to suit the population of the present study.

a. I-E LC Scale

Locus of control was measured by Rotter's (1966) 29 item (with 6 filler items) I-E LC scale. It is a forced-choice type of measure offering alternatives between 'internal' and 'external' control interpretations of items. Since the test has 6 filler items, the score ranges from zero (most internal) to 23 (most external). The higher the score, the more external is the orientation.

b. PIL Scale

Purose-in-life (PIL) scale is a 20-item, 7 point scale (Crumbaugh, 1968) which measures the degree to which an individual experiences purpose in his life. Each item extends from one extreme feeling to its opposite kind of feeling. Score ranges from 20 (low PIL) to 140 (high PIL). Numerically, higher scores reflect increased purpose-fulness or self- transcendence.

c. AICS

Adjustment patterns of Bangladesh adolescents in five areas i.e., home, health, society, emotion, educaton as well as total adjustment were measured by Sinha and Sinha, (1977) 102-item Adjustment Inventory for College

Students (AICS), Response to each item was given in 'Yes' or 'no form. For any response indicative of adjustment, zero was given. Otherwise a score of 1 (one) was given. Classification of the responses were done in terms of five categories, i.e., 'excellent', 'good', average 'unsatisfactory', very unsatisfactory'.

Procedure

The respondents were met in their familiar class room set up. The eight page booklets containing the three scales were distributed among the students after the necessary introductory remarks. The subjects were asked not to discuss the tests amongst themselves. The importance of the need for "individual opinon" was stressed. In each testing session, it took about one hour to complete all the three tests.

Analysis of the Data

To see the effects of sex, locus of control, and purpose-in-life, and their interactions on different areas of adjustment (i.e., home health, social, emotional, educational, and total), means, standard deviations and $2 \times 2 \times 4$ analysis of variance were computed. Attempts were also made to understand the dynamics of adjustment in terms of case studies of some randomly selected cases.

Results

Table 2 shows the means and standard deviations of the adjustment scores for the groups classified in terms of sex, locus of control, and purpose-in-life.

Table- 2

Means and Standard Deviations of the Adjustment Scors for Adolescent Boys and Girls, Locus of Control, and Purpose-in-life groups.

Areas of Adjustment		Sex Difference		Locus of Control			Purpose-in-life		
		Boys	Girls,	ILC	ELC	LPIL	MLPI	L MHPIL	HPIL
HOME	N	669	631	692	608	332	329	321	318
	Mean	4.65	3.49	3.70	4.53	5.51	4.27	3.51	2.97
	S.D.	2.83	2.66	2.65	2.92	2.97	2.65	2.33	2.21
Health	Mean	4.31	4.19	4.09	4.44	4.91	4.45	3.84	3.48
	S.D.	2.64	2.84	2.74	2.70	2.72	2.60	2.64	2.64
Social	Mean	6.92	7.45	6.30	7.98	9.24	7.32	6.35	5.75
	S.D.	3.35	2.93	2.99	3.12	3.15	2.87	2.75	2.62
Emotional	Mean	13.39	13.92	12.50	14.99	16.85	14.12	12.71	10.87
	S.D.	5.95	5.16	5.39	5.44	5.38	5.05	4.82	5.13
Educational	Mean	7.36	6.00	6.51	7.43	8.86	6.90	5.87	5.05
	S. D.	3.48	3.28	3.20	3.40	3.41	3.18	2.87	2.61
Total	Mean	36.63	34.96	32.70	39.3	45.68	37.05	32.17	28.05
	S. D.	14.56	12.62	13.14	13.69	13.07	11.79	11.38	11.13

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Table- 3

ANOVA of Adjustment Scores for Sex, Locus of Control and Purpose-in life groups.

Sources	df	F Values					
		Home	Health	Social	Emotional	Educational	Total
Sex Diference (A)	1	88.55**	2.54	3.09	9.14	92.71**	19.31**
Locus-of control (B)	1	16.84**	0.59	45.54**	38.09**	30.71**	45.29**
Purpose-in-life (C)	3	51.79**	26.48**	80.05**	67.56**	83.37*3	115.98**
AXB	1	0.00	0.43	1.45	0.22	0.08	0.06
AXC	3	0.99	2.14	1.87	1.58	3.31*	3.25*
BXC	3	2.04	1.36	1.94	2.48	1.12	1.59
AXBXC	3	0.42	1.58	0.29	0.07	2.14	0.16
Error	1284						

* P<.05

** P <.01

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A 2 × 2 × 4 analysis of variance (Table -3) shows a significant main effect of sex in the areas of home (F=88.55; df=1, 1284 P<.01f) education (F=92,71; df =1, 1284 : p<.01), and overall (F=19,31; df= 1, 1284; p<.01) adjustment.

It is also evident from the table that locus of control has a significent main dffect in all the areas of adjustment (i.e. home ; F=16.84 ; df=1, 1284 ; p<.01, social : f 45.54 ; df=1, 1284; p<.01; Emotional: F=38.09; df=1, 1284 p<.01. Educational : F 30.71 ; df=1, 1284 ; p<.01 : Total : F=45.29 ; df=1, 1284 : p<.01). Only in the health area, the main effect was found to be non-significant (F=0·59).

The Table further shows significant main effect of purpose-in-life on all the areas of adjustment (Home; F=51.79, df=3, 1284; p<.01 ; Health : F=26.48, df=3. 1284; P<.01; Social: F=80.04, df=3, 1284; p<.01 Emodional: F=57,56, df=3, 1284; p<.01f ; Educational; F=83.37, df=3, 1284; p<.01 ; Total =115,98, df=3, 1284; p<.01).

The resutls also show non-significant interaction effects of Sex and Locus of Control (A X B) Sex X Purpose-in-Life (A X C), Locus of Control X purose -in -Life (B X C), Sex X Locus of Control Xpurpose-in-Life (A X B X C) in almot all the areas of adjustment. Only in the area of educational (F=0.31 ; df=3. 1284; p<.05) and total (F=3.25 ; df=3; 1284; p<.05) adjustment, interaction effect of Sex X Purpose-in-Life (A X C) was found to be significant.

DISCUSSION

Results (Tables 2 and 3) show a significant sex difference (adolescent girls better adjusted than boys) in the areas of home, education and total adjustment. These differences could be due to the fact that for girls, with the

onset of puberty, scope for their interaction outside home decreases and they become more emotionally attached with the family members. In the educational area, boys experience more problems because, in Bangladesh, education is seen is a vehicle for the formation of future career and profession for which boys strive more and thus experience more problems. In their over-all adjustment, because of the cnflict between parental and peer-group expectations, and unstable political atmosphere of the country, adolescent boys tend to experince more adjustment problems.

The observed non-significant sex difference in health adjustment could be due to lack of sufficient knowledge and sensitivity of the adolescent boys and girls to their health state. Non-significant sex difference in social adjustment could be due to the fact that both boys and girls excel in different types of social skills. In the emotional adjustment, non-significant sex difference could be due to the fact that both the boys and girls, during adolescence, experience internal (due to changes in the functioning of the hormones) and external (due to the development of secondary sex characteristics) changes which made them feel awkward. These feelings of awkwardness generates more emotional problems for both edolescent boys and girls.

Results indicating 'internal' adolescents to be better adjusted than the 'externals' in all the areas (except the health area) of adjustment could be due to the fact that internality induces greater self ragulatory functions and thereby dectrease adjustmnent problems of the adolescents. In the health area, nin-significant difference indicates that both the groups (ILC and ELC) lack sufficient knowledge about the integrative functioning of the total psycho-biological system.

Significant differences between different purpose-in-life groups in all the areas as well as total adjustment indicate that higher degree of PIL helps the adolescants to be an active participant in the transactive behaviour in home and social settings to advance educationally, to make them aware of their health state, and to help them in stable and mature emotional expressions : this helps them in healthy growth toward adulthood.

Non-significant interaction effects indicate that sex of the adolescent, his locus of control belief, and purpose in life orientation are non-interactive in producting their joint effects on different areas of adjustment. These non-significant interactions could be due to the categorization of the variables in terms of their levels, thus reducing the sample size in each category. In short, it is evicent from the findings that sex, LC beliefs, and PIL orientations have significant effect on adjustment of adolescents, though jointly they failed to produce any effect.

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CLASS AND SEX DIFFERENCES IN SENSORIMOTOR DEVELOPMENT AMONG INFANTS IN DHAKA CITY ON THE UZGIRIS AND HUNT'S ORDINAL SCALES OF PSYCHOLOGICAL DEVELOPMENT

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The deficiencies of our current tests as scientific instruments have been frequently noted (e.g.,) Thomas, 1942: Loevinger, 1947). A mental test has not one but many levels of validity, according to the characteristics of the group to which it is applied; the validity may become very low when it is used with subjects who fall outside a specific cultural or educational range. In such cases the comment of Stoddard (1951), "this is also implied in Hebb's (1949) concept of two kinds of Intelligence; the innate potential determined by brain structure and neural metabolism, and the average level of performance which bas been built up through previous learning. The two kinds of intelligence show varying degrees of correspondence; it is chiefly the second kind which, from an empirical and functional point of view, is represented in mental tests".

"Individual differnces in mental ability have been discussed, by E. L. Thorndike et al (1927) as involving three

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1. Paper presented in the third bi-annual conference of the Bangladesh Psychological association, held in Dhaka, during March 26-27, 1984.

From *Bangladesh J. of Psychology*, 1984, *Reprinted by permission*, 87 - 103.

principal aspects: level, range and speed. The level of ability that a person reaches is defined by the difficulty of mental tasks which he can perform; or the range. or breadth, of ability is defined by the number of different tasks which he can perform at various levels, speed, or rate of work, is also a factor in mental efficiency, although probably of less direct importance than the other aspects of ability. But few attempts have been made to deal analyticaly with these constituent factors of intellgence the principal studies are limited chiefly to general meassures, of mental functions. These general measures, concerned with the capacity to utilize symbols and to acquire intellective adaptations, are ordinarily expressed in terms of a quantitative composite score, such as the IQ.

Such limitations of measures in ability probably stems from the lack of clarity of the conceptualization of the ability, i.e. the term intelligence itself. We get support to this comment by Piaget's view on intelligence. according to Piaget (1962), when we talk about intelligence. "...Unfortunately, we find ourselves confronted by a great number of definitions, For Claparide, intelligence is an adaptation to new situations. When a situation is new. when there are no reflexes, when there are no habits to rely on then subject is obliged to search for something new. That is to say, Claparide defines intellegence as grouping, as feeling one's way, trial and error behaviour ... as far as I am concerned, this definition is too vague, becaues trial and error ocours in the formation of habits, and also in the earliest established reflexes : when a newborn baby learns to suck .... karl Buhler defines intelligence as an act of immediate comprehension;

that is to say, an insight. Buhler defines intelligence as an act of immediate comprehension; that is to say, an insight.

Buhler's definition is also very percise, but it seems to me too narrow. I know that when a mathematician solves a problem, he ands by having an insight, but upto that moment he feels or grups for, his way; and to say that the trial-and-error behavior is not intelligent and that intelligence starts only when he finds the solution to the problem, seems a very narrow definition."

Piaget, therefore, proposed to define intelligence not by static criterion, as in previous defintions but by the direction that intelligence follows in its evolution and thus he defined intelligence as a form of equilibration or forms of equilibration, toward which all cognitive functions lead. Equilibration in Piaget's vocabulary is not an exact and automatic balance, as it is in Gestalt theory : he defines equilibration principally as a compensation for an external disturbance. Piaget (1950, 1957) and his co-workers assert that logical structure is not originally present in the child's thinking, but that it develops s a function of an internal process, "equilibration", which is heavily dependent on activity and experience. According to Smedsund (1961) this point of view differs radically from that of learing theory since practice is not assumed to act through external reinforcements, but by a process of mutual influence of the child's activities on each other. The process of equilibration is not identical with maturation, since it is highly influenced by practice which brings out latent contradictions and gaps in mental stlucture; and there by initiates a process of inner reorganization.

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As pointed out by E.L. Thorndike (1927) the three principal aspects of intelligence are the level, the range, and the speed. Piaget (1965) divided the levels of inner reorganization, that is, the levels of intellectual development, of any child into four great stages. These stages are; first, the sensorimotor period before the apperarance of language; second, the period from about two to seven years of age, the pre-opeational period which precedes real operations, third, the period from seven to 12 years of age, a period of concrete operations (which refers to concrete objects); and finally after 12 years of age, the period of normal operations, or propositional operations. So, to Piaget the study of the stages of intelligence is first a study of the formation of operational structures. An operation is an internalized action, but it is also a reversible action. Take,for example, an operation like addition : addition is a material action, the action of reuniting. On the other hand, it is a reversible action, because addition may be compensated by subtraction. Consequently, Piaget defined intelligence in terms of operations, coordination of operations, four hierarchical levels of operations - the four operational levels of intelligence.

On the basis of Piaget's provocative thought, testing psychologists have tried to develop some measures according to Piagetian concepts and theoretical model. Anastasi (1982) while talking about Piagetian scales noted that, " .... Although aplicable well beyond the preschool level, the scales modeled on the developmental theories of Jean Piaget have thus far found their major applications in early childhood. all such scales are in an experimental form ; few are commercially available ... At this stage, the major contribution of Piagetian scales to the

psychological testing of children consists in providing a theoretical framework that focuses on developmental sequences and a procedural approach characterized by flexibility and qualitative interpretation. ... The scales are content-referenced in so far as they provide qualitative descriptions of what the child is actually able to do. Piagetian tasks focus the long-term development of specific concepts or cognitive schemata rather than on broad traits. With regard to administration, the major object of Piagetian scales is to elicit the child's explanation for an observed event and the reasons that uncerlie her or his explanation. Scoring is characteristically based on the quality of the responses to a relatively small number of problem situations presented to the child rather than on the number of difficulty of successfuly completed items. For this purpose, the child's misconceptions revealed by the incorrect responses are of primary interest. The examiner concentrates more on the process of problem solving than on the product."

Uzgiris and Hunt's (1975) ordinal scales of psychological development is such a Piagetian scale which is designed for a much younger age level than are those of Lawrendeau and Pinard, extending from the age of 2 weeks to 2 years. These ages cover approximately what Piaget characterizes as the sensorimotor period and within which he recognizes six levels, In order to increase the sensitivity of their instruments, Uzgiris and Hunt clasified the responses into more than six levels, the number varying from 7 to 14 the different scales. The series includes six scales, designated as follows :

(1) Object Permanence–The child's emerging notion of independently existing objects is indicated by visual following of an object and searching for an object after it is hidden with increasing degrees of concealment.

(2) **Development of Means for achieving desired environmental ends**–use of own hands in reaching for objects and of other means such as strings, sticks support ect :

(3) **Imitation**–including both gestural and vocal imitation.

(4) **Operational causality**– recognizing and adapting to objective causality; ranging from visual observation of one's own hands to eliciting desired from a human agent and activating a meachanical toy.

(5) **Object Relations in Space**–coordiantion of schemata of looking and listening in localizing objects in space; understanding such relations as container equilibrium gravity.

(6) **Development of Schemata for relating to objects**–responding to objects by looking, feling, manipulating, dropping, throwing, etc. and by socially instigated schemata appropriate to particular objects (e.g. "driving toy car building with blocks, wearing beads, naming objects). Uzgiris and Hunts scales were originally designed to measure the effects of specific environmental conditions on the rate and course of development of infants, studies of infants reared under different conditions (Paraskevopoulos and Hunt, 1971) and on infants participating in intervention programmes (Hunt Paraskevopoulos, Schickedauz, and uzgiris, 1975) have thus far indicated significant effects of these environmental variables on the mean age at which children attain different steps in the developmental scales (Hunt, 1976).

Class Differences in Abilities

Several studies have reported class differences in abilities. Neff (1938) pointed out that in various studies of school children a difference of about 20 points in IQ has been found between children of the highest and lowest socio–economic groups. this also holds among preschool children. The differences commonly reported are sometimes more marked for verbal tests but are not limited to verbal tests. Havighurst and Breese (1947) found that children of higher family social status were significantly superior to those of lower status in each of the Thurstone tests of primary mental abilities. In another study, Janke and Havighurst (1945) obtained significant social class differences for each of a series of verbal and nonverbal tests, with the exception of the Minnesota Mechanical Assembly Test. Davis (1948), and Davis and Havighurst (1948) criticized existing intelligence tests as being too narrowly limited to problems of an academic type, which are not equally relevant, comprehensible, or motivating among children of different social classes. Support can readily be found for the agrument that current testing methods emphasize subject matter, problems, and tasks which are more compatible with middle-class than with lower class goals and expriences. Whether the manifested class differences in inelligence and other cognitive functioning is due to heredity, or environment, or due to the middle-class bias of the test content has yet remained inconclusive.

Sex differences in Abilities

A tremendous amount of work has been done of differences between the sexes in intelligence and special

mental abilities. Terman and Tyler (1954) summarized these separate investigations and made some important generalizations. These generalizations are as follows :

1) If thre is a difference between the sexes in general intelligence it cannot be identitied by means of our present tests, since some types of problem favour males, others favour females, and there is no satisfatory way to decide which ones constitute more valid indicators of general mental ability (McNemar, 1942).

2) Girl tend to excel on verbal types of problems; boys, on quantilative or spatial.

3) School marks almost universally indicate superior achievement for girls, whereas achievement tests show girls superior in all kinds of language material, boys in science and mathematics.

4) Vocatonal aptitude tests show that boys are higher in mechanical aptitudes and girls in clerical aptitudes.

5) Ability differences are most apparent at the older age levels in children. Most of them do not show up at preschool period.

The Present Study

The review of the above literature shows that class-differences are generally prominent and sex differences are apparent in cognitive characteristics of children of school age, which were based upon traditional intelligence test. The present study was conducted to test the hypothesis of class and sex differences in sensorimotor development among the infants in Dhaka city, by a non-traditional intelligence test—a Piagetian scale. Piaget's description of six major areas of sensorimotor

development, as used in Uzgiris and Hunts ordinal scales of psychological development, were the operational measures for comparison between middle class vs lower class, and male vs female infants of approximately sensorimotor period. It was hypothesized that class—difference would be significant in all areas of sensorimotor development, but sex—difference would not be sigtnifcant. The main object of this study was to find out the nature of class and sex difference in sensorimotor development by a Piagetian scale, as well as, to get some supportive information regarding validity of Uzgiris and Hunt's scales as a sensitive measure of environmental deprivation in Bangladeshi culture. Whether this scale can also be valid as a diagnnostic measure of degree of retardation in sensorimotor period, and be valid as a predictor of mental retardation in Bangladesh, was beyond the scope of this study.

Method

Subjects

The sample of this study were 53 children who came from middle and lower class families of Dhaka City. The range of these subjects were from eighteen months to thirty months. 28 subjects were from middle class and 25 from lower class. The mean age of middle class subjects was 22·5 months (S.D. = 2·3 months) and lower class subjects was 23.9 months (S.D. = 2·5 months). of the 28 subjects in middle class families, 17 were boys and 11 were girls; while of the 25 subjects in the lower class families 12 were boys and 13 were girls. All of these subjects appeared normal in physique and in intelligence. The fathers of the middle class children were generally teachers, advocates,

service holders, and businessmen. But the occupation of the fathers of lower class subjects were generally rickshawpullers or day laboures. The subjects were selected randomly from different parts of Dhaka City, but no systematic procedure were followed for selecting the subjects.

Measures : The Uzgiris and Hunt Scales

The Uzgiris and, Hunt (1975) scales are based, in part on Piaget's theory of sensorimotor development. Piaget (1936) describes the genesis of infant cognition as occurring through a six-stage process beginning at birth and culminating in the ability to use symbolic representationally indicative behaviors at around 2 years of age. Each stage in this sequence is defined by behavioral response classes that exemplify distinct levels of cognitive performance.

Uzgiris and Hunt (1975) provide specific instructions for arranging the eliciting situations to assess the critical behaviors for the directions specify : (i) the position of the infant and the nature of the physical environment around the child, (2) the object or subjects suggested for use in the situation, (3) the irstructions for actions to be carried out by the examiner, (4) the suggested number of times the situation is to be repeated, and (5) the various actions and infant may be expected to show in situations.

Each of the seven scales on the Uzgiris and Hunt assessment instrument includes from 4 to 15 eliciting situations that are used to determine whether the child possesses a range of different cognitively indicative behaviors. Each eliciting situation includes a number of possible infant actions that might be observed in response to a particular testing procedure (i.e. eliciting situation).

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Uzgiris and Hunt (1975) have designated one or more of these possible infant actions as "Critical" actions. Critical actions are those behaviors that . . . . . imply that an infant has attained a particular level of functioning in a given branch of development (Uzgiris and Hunt, 1975). The critical actions (i.e. the behavior that are manifested) determine the child's performance levels in each of the branches of development.

In the present study, the chief object was to measure the sensorimotor development of children whose age was one and half year and above. So the eliciting situations which were much easier for the said age group were excluded. Considering time constraint only a few eliciting situations were selected for presentation to the subjects. From a number of similar eliciting situations, one or two were selected without hampering the representativeness of the sample of behavior through which sensorimotor development almost similar to the full scale could be measured . Thus a " short form" of the Uzgiris and Hunt (1975), as were used in the present study included the following eliciting situations for the seven categories of sensorimotor development:

Scale 1: The development of visual pursuit and the permanence of objects.

1) Following a slowly moving object through a 18° arc
2) Finding an object which is completely covered
3) Finding an object which is completely covered with a single screen in two places.
4) Finding object in cup and screen
5) Finding object in cup and two screens
6) Finding object in hand.

Scale II: The development of means for obtaining desired environmental events.

1) Use of the relationship of support
2) Use of string horizontally
3) Use of string vertically
4) Use of stick as means.

Scale II-a : The development of vocal imitation.

1) Use of vocalization other than crying
2) Imitation of familiar words
3) Imitation of Unfamiliar words

Scale II-b : The development of gestural imitation.

1) Imitation of familiar simple schemes
2) Imitation of unfamiliar gestures invisible to the infant.

Scale IV : The development of operational causality.

1) Behavior to a spectacle created by an agent acting on an object.

Scale V: The construction of object relation in space.

1) Localizing an object by its sound
2) Grasping a visually presented object
3) Following visually a rapidly moving object
4) Appreciating gravity in play with objects.

Scale VI: The development of schemes for relating to objects.

1) Acting on several objects available together.

A short list of elicting situations were taken to measure the seven areas of sensorimotor development. For each of

the eliciting situations there were generally four or five possible actions, of which the last one was the critical action. But in case of the eliciting situation of the scale development of schema', there were about fourteen possible actions for the child. As an adapted short list of items from the Uzgiris and Hunt (1975) were used in this study, the traditional scoring system was not applicable. A new system of scoring was adopted. This was done by designating the possible actions a, b, c, d, e. etc. for each of the eliciting situations as 1, 2, 3, 4, 5, etc. Then, the corresponding numbers of the observed actions for each of subject were summated for the eliciting situations of each catergory. Thus the scores of the subjects for the different scales could cover the following ranges : (a) object relations : 4 to 14, (b) object permanance-6 to 23, (c) development of means : 4 to 16, (d) vocal imitation-3 to 10, (e) gestural imitation : 2 to 8, (f) operational causality : 1 to 5, and (g) development of schema : 1 to 105. If we accept one assumption that the possible actions for each of the eliciting situations maintained qualitatively equal distances, then we can take it for granted that the scoring based on these possible actions can form an interval scale although strictly speaking the Uzgiris and Hunt (1975) fulfill the requirements of ordinal scale without any question.

Materials

Various toys were used as materials for creating the different eliciting situations. These toys were : ball, blocks, car, cardboard, cup, musical clown, music box, plastic animals, pull-toy, screens, stick, string etc.

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Procedure

The author and the three other final year students of Psychology got training for administering the Uzgiris and Hunt's scale from an American Psychologist Dr. Mrs. Maureen Black. Inter observer reliabilities were checked and the training session continued until the reliability reached as high as ·90.

At first the mothers of the children whose age range were between $1\frac{1}{2}$ to years $2\frac{1}{2}$ years were contacted by some of their close acquaintances. Mothers were told that the observer wanted to measure the development of her child. After the mothers were convinced, the observer tried to establish rapport with the child. The observation started after the establishment of rapport with the child. Children from middle class families were observed in the drawing room of their own houses, while the children from lower class families were observed either on the outside of their house or in an adjacent building situated in slum areas. For each child the observation period continued about thirty to fourty minutes.

Both the general and the specific instructions, as provided in the monograph of Uzgiris and Hunt (1975, p: 143-204), were followed in administering the scales. The data were collected during March to July, 1979.

Results

Scoring for the "short form" of the Uzgiris and Hunt's (1975), scales were done accepting the assumption of interval scale. 2x2 analyses of variances were done to determine the effect of class and sex on the seven areas of sensorimotor development. For object relations, the difference between middle and lower class were significant ($P<.001$), but the differences between boys and girls were

not significant. The interactions between class and sex were significant (P<.001), for the girls of the middle class did better than the boys of middle and lower class, while the girls of the lower class did not. The summary of the analysis of variance for object relations are presented in Table - below:

Table I

The Analysis of Variance for Class and Sex on Object Relations among the Infants in Dhaka City.

SV	df	SS	MS	F
Class	1	3.24	3.24	13.50*
Sex	1	.01	.01	.04
Class X Sex	1	630.65*	630.65	2627.70*
Within Group	49	11.73	.24	

*p <.001

For object permanence, the main effect of class and sex, and interactions between class and sex were significant (p.001), which is shown in shown in the following Table 2.

Table 2

A 2X2 Analysis of Variance for class and Sex on Objeet Permanence Among the Infants in Dhaka City.

SV	df	SS	MS	F
Class	1	57.85	57.85	34.23*
Sex	1	37.92	37.92	24.44*
Class X Sex	1	1301.61	1301.61	770.18*
Within Group	49	82.81	1.59	

*p < .001

For the development of means, the class differences were significant at.05 level but sex differences were not .

On the other hand, the interaction between class and sex were significant at .001 level. The results are presented in Table 3.

Table 3

A 2X2 Analysis of Variarce for Class and Sex on the Development of Means Among the Infants in Dhaka City.

SV	df	SS	MS	F
Class	1	6.27	6.27	5.97*
Sex	1	.84	.84	.80
Class X Sex	1	514.25	514.25	489.76*
Within Group	49	51.25	1.05	

*p< .001.

For the limitation-vocal, the class differences were significant at .01 level, but the sex differences were not significant. The interaction between class and sex for the imitation -vocal were significant at .001 level. The results are presented in Table 4.

Table 4

A 2X2 Analysis of Variance for Class and Sex on the Imitation -Vocal Among the Infants in Dhaka City.

SV	df	SS	MS	F
Class	1	8.15	8.15	10.87*
Sex	1	.05	.05	.07
Class X Sex	1	105.49	105.49	140.56**
Within Group	49	36.96	.75	

*p< .01,

**p<.001

In case of imitation -gesture, the class differences were significant at .05 level, but the sex differences were not

significant. The interaction between class and sex for the imitation-gesture was significant at .001. These results are presented in Table 5.

Table 5

A 2X2 Analysis of Variance for Class and Sex on the Imitation -Gesture Among the Infants in Dhaka City.

SV	df	SS	MS	F
Class	1	2.34	2.34	6.00*
Sex	1	.40	.40	1.03
Class X Sex	1	107.82	107.82	276.46**
Within Group	49	19.11	.39	

*p< .05,
**p<.001

For operational causality the main effect of class was significant at .001 level, but the main effect of sex was not significant. The interaction between class and sex was significant at .001 level. These results are presented in Table 6.

Table 6

A 2X2 Analysis of Variance for Class and Sex on the Operational Causality Scale Among the Infants in Dhaka City.

SV	df	SS	MS	F
Class	1	2.56	2.56	16.00*
Sex	1	.02	.02	.13
Class X Sex	1	60.66	60.66	379.13*
Within Group	49	7.61	.16	

*p<.001

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For the sensorimotor area the "development of schema," the differences between middle and lower class children were significant at .05 level, but the differences between boys and girls were not significant. The class and sex interactions on this measure were significant at .001 level. The analysis of variance tables is shown on Table -7 below :

Table - 7

A 2X2 Analysis of Variance for c=Class and Sex on the "Development of Scheme" Among the Infants in Dhaka City.

SV	df	SS	MS	F
Class	1	47.82	47.82	6.33*
Sex	1	2.58	2.58	.34
Class X Sex	1	2021.68	2021.68	267.77**
Within Group	49	369.89	7.75	

* p< .05,

**p<.001,

In general it was found that the class differences and interactions between class and sex were significant in all areas of sensorimotor development. Sex differences were significant in case of object permanence only. Further analysis by t-tests were also conducted to reveal the nature of interactions. For finding the simple effects, four sets of t-tests were conducted. These were: a) between boys of middle Vs. lower class, b) between girls of middle Vs. lower class, c) between boys and girls of middle class. d) between boys and girls of lower class. The results under

the Table 8 show that the differences between girls of middle vs. lower class were significant for almost all areas of sensorimotor development except the imitation-gesture.

Table 8

t- Values Showing the Simple Effects of Class and Sex on Seven Areas of Sensorimotor Development Among the Infants in Dhaka City.

Sensorimotor Area	Middle Vs. Lower Class boys (df=27)	Middle Vs. Lower class girls (df=22)	Middle Class boys vs girls (df=25)	Lower Class boys vs girls (df=23)
Object Relations	1.14	3.08*	.34	1.14
Object Permanence	1.69	3.92**	.68	1.65
Dev. of Means	.72	2.84*	.85	1.83
Imitation-Vocal	1.86	3.17*	.78	.81
Imitation-Gesture	1.19	.03	.12	1.34
Operational Causality	1.96	5.55*	.16	1.08
Dev. of Schema	.47	2.98*	1.11	1.87

*P< .01

**p< .001

Discussion

The results of the present study support the first hypothesis that class difference would be significant in all areas of sensorimotor development. From the results of the analysis of variances it is clear that the main effect of class, i. e. the difference between middle -class and lower-class children for different aspects of sensorimotor development were significant at ·05 level to .001 level. The highly significant (p<.001) areas were "object relations',

"object permanent" and "operational causality". Low significant ($p<.05$) areas were "development of means", "imitation-gesture", and the "development of schema". With respect to class the results are in agreement with the studies of Neff (1938), Breese (1947) , and Janke and Havighurst (1945). Davis (1948), and Davis and Havighurst (1948) criticised the existing intelligence test for being too narrowly limited to the problems of academic type which favors the middle class children. But in this study the Piagetian scale Uzgiris and Hunt (1975) was free from any academic bias, still the performance of middle class children was better than that of the lower class. The familiarity factor for the test materials was almost controlled for both classes. Because children of this study were at very early stage, the age range being 18 months to 30 months only, the familiarity factor for the test materials were either equal, or could not be marked. Regarding the heredity factor we can assume that it was normally distributed among all classes, and theoretically we can accept that the children from middle and lower class families had similar hereditary background. We can attribute this class differences in sensorimotor performance to the environmental factors. Among the enviromental factors there might be--the physical facilities within the house of the child, child rearing pattern, quality of interactions by the parents and adults with the child, nutritional standards etc. These opportunities vary markedly among the middle and lower class families. Further studies on class differences in sersorimotor development may be directed quantitative estimation of each of the above mentioned aspects of the environment.

The hypothesis that the sex differences in sensorimotor development would not be significant, was

partially confirmed. Among all the areas, only the difference in "Object Permanance" between boys and girls was significant ($p<.007$), the boys being superior to girls. The explanation behind such finding may be two fold : (a) As according to Watchs (1975) study it was found that the "Object Permanance" scale of the Uzgiris and Hunt's measure has the highest predictive validity as a measure of later intelligence, so the sex difference was sensitive in more valid scale compared to others; (b) the second explanation regarding non-significant sex differences in the majority areas of sensorimotor development may be that the sensorimotor stage was too early to develop and detect such differences, as the point was mentioned by Terman and Tyler (1954). Which of the above two explanations is more correct can be revealed by further studies.

One of the important findings in this study was the highly significant interaction effect between class and sex. The general nature of interactions were that the girls on the middle class did better than boys of her own class, while the girls of the own class could not do better than the boys of the same class. Investigation on the simiple effects by t-tests revealed that only the class differences among the girls were significant. Other simple effects were cancelled out because of the typical nature of interactions found in this study. The superiorty of the middle class girls over the middle class boys were not clear. This may be due to non-matched sample of this study. Further studies must be conducted by taking matched subjects in terms of age counting upto months and days.

We can conclude from the above findings that the Uzgiris and Hunt's scales on sensorimotor development can be used as a valid measure of the quality and quantity

of enviromental deprivation. For any intervention programme towards the remedy of such deprivation can be diagnosed or evaluated by the Uzgiris and Hunt's scales on sensourimotor development.

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AN INVESTIGATION OF THE FACTORS RELATED TO ANXIETY IN CHILDREN

Dilruba Afrose

On the basis of clinical experiences in dealing with thousands of adults with physical as well as psychological problems, the clinicians have emphasized the importance of anxiety as one of the causative factors. It is also an empirically proved fact that competition and complexities of the modern world create constant anxiety in the adults. But in developing countries like Bangladesh where life is not as complex as that of developed affluent countries, and specially where the children live comparatively more sheltered life than the adults, clinical evidence of chlidren suffering from anxiety is causing concern among the clinicians and the professional workers in the field of child and adolescent development. In children, anxiety is manifested by hyperactivity, tension and clumsiness, nightmares, sleepwalking etc, and when it becomes severe the child shows poor performance in school and therefore, every effort should be made to minimize this unconstructive emotion in children. For taking any remedial measure indentification of the antecedent conditions for anxiety is essential.

The paper was read at the Third Asian Workshop on Child and Adolescent Development held in Kuala Lumpur, Malayasia, in April, 1984. The project was financed by the U. G. C. Bangladesh.

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To understand the problem of anxiety is a very difficult task as there might always be hidden causes and far reaching consequences. However, researchers in this field tried to attack the problem from various points of view. Sullivan (1953) maintains that anxiety is initially induced in the infant by anxiety in the mother through empathy. According to him, anxiety arises almost inevitably out of initial dependence and helplessness of the human infant. Because he must rely so much on other people for his survival and well-being, the infant is peculiarly sensitive to their moods and general attitude toward him. Sooner or later, Sullivan suggest, the person caring for him, most likely his mother, becomes upset about something and in a mysterious non- verbal way she communicates her feelings to him. Perhaps it has to do with the way she holds him; perhaps it is a change in her experession, but in any case, the infant senses that something is drastically worng and experiences the profoundly unpleasant emotion called anxiety. Hill and Sarason (1966) on the other hand, believe that chronic anxiety results from harsh evaluations by parents of children's products and performances in their pre-school years.

Researches into parent-child relation have shown that the child's behavior, his personality and his adjustments are the products of interaction between various parental characteristics on the one hand and the child's individual characteristics on the other. Moreover, as the mother plays the dominant role in providing affection, discipline and other socialized behavior, more emphasis was put on interaction between the mother and the child. But according to Symonds (1949), the essence of parent-child relations lies more in how a parent feels than in what a parent does i.e. his concern lays with parental attitude.

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Clinical studies of mothers of maladjusted children which have been reviewed by Radke (1946) and Symonds (1949) have revealed syndromes of maternal behavior and attitudes which are related to differential personality structure of children. Research interest in the influence of the parent-child relationship upon personality development of the child has also been stimulated by the studies which have reported that objectively measured attitudes of parents towards child rearing are related to emotional and social adjustment of children.

From these studies it may be assumed that parental attitude toward childrearing is related to anxiety reaction in children and in this context we may predict that anxiety will be higher for those children whose parents show maladaptive attitude toward child-rearing. However, not going into the difficult task of describing what maladaptive attitude is let us examine why parents show differential attitude to their children. In our culture boys and girls are brought up in such a way so that they can fit into their individual stereotype sex roles. Social learning theorists believe that the boys, and the girls' behavioral pattern will be different because from infancy they are treated differently. In our social system, more demands of a competitive nature are made on boys and that is why boys are more anxious about achievement than the girls (Hill and Sarason 1966). But Hill and Sarason (1966) maintain that achievement-anxiety is situational anxiety whereas chronic anxiety is found in poorly evaluated children. Traditional beliefs and customs prevalent in our society force the mothers to show such a biased attitude that from early infancy it is apparent to the female child that she is inferior to her brothers as well as to the males in general.

The present study, was therefore, undertaken to investigate whether maternal attitude toward child-

is related to anxiety reactions in children and also to make a comparative study of anxiety responses of the boys and the girls.

Method

Subjects

The subjects consisted of 250 boys and 250 girls who were randomly selected from twelve different schools of Dhaka city. The following criteria for selection were used for both the boys and the girls : age of the subjects between 12 to 14 years, parents living together and willingness to co-operate. A Bengali version of the Children's Form of the Manifest Anxiety Scale by Castaneda et. al. (1956) was administered to them and then on the basis of the anxiety Scores achieved by them on this scale they were divided into three groups viz. high, moderate and low anxiety groups.

Instruments Used

The translated Bengali version of the Children's form of the Manifest Anxiety Scale (CMAS) by Castaneda, McCandless and Palermo (1956) was used to measure the extent of anxiety in children. The original scale was translated into Bengali by the author. The reliability was studied on a group of 100 children in the age range of 12 to 15 years. The test-retest reliabilities over a period of two weeks were 0.84 and 0.71 for anxiety scores and lie scores respecitively. For validity correlations were calculated between scores obtained by 40 children (20 children scoring very low and 20 children scoring very high) on CMAS and teacher's rating. The obtained value of correlation was 0.85 for anxiety and 0.62 for lie score.

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The CMAS contains 53 items of which 42 items measure anxiety and the rest 11 items give lie score of the children. Space was provided on the sheet for the subjects to answer some questions regarding his age, sex, class, school, home address and parent's profession.

A structured questionnaite was used to obtain multivariate measurement of attitude toward child-rearing and the family. The questionnaire was designed to measure seven variables viz, encouragement of verbalization, marital conflict, strictness, age of training, fostering dependency, over-protecton and punishment and for this purpose 28 items were developed based on the items of Parents Attitude Research Instrument. The items were presented to ten judges to identify every item that seems to represent a given variable. Interjudge correlation was calculated to find out the highest agreement among the judges regarding the variables reflected in a given item. That item is, then taken as a representative measure of the agreed variable. A brief description of the variables is given below :

High scores in the scale measuring encouragement of verbalization seem to reflect approval of a close relationship with a child which still permits freedom to develop as a diffrentiated individual and also express his views about family affairs and parent's behavior toward him.

High scores in the scale measuring attitude toward marital conflict reflects an expectation of a great deal of quarreling and fighting between husband and wife and reflects hostility which is openly expressed.

High scores in the scale measuring strictness reveal a demand for conformity to rigid rules.

High scores in the scale measuring attitude toward age of training reveal a demand for achievement.

High scores in the scale measuring attitude toward over-protection have a central theme for control of the child through keeping the child indebted to the mother dependent and immature.

High scores in the scale measuring attitude toward fostering dependency reflects a perception of the child as a weak person who must be protected by the mother.

High scores in the scale punishment reveal an attitude that approves of the use of harsh punishment as a method of child training and thus reflects parental dominance.

The response for each item was expressed in a five-point scale "strongly agree", "agree", "undecided", "disagree" and "strongly disagree" and the subject was to choose one of these responses. The total score of each individual for every variable was determined by summing her response scores to all items representing a given variable.

Procedure

The CMAS was administered to the subjects in the class-room situation following the standard procedure. Then the houses of each of the 500 subjects were visited by two research assistants and parental attitude scale was administered to the mothers of the subjects individually.

Results

The persent investigation tries to answer two major questions. In order to answer the first question, that is, whether there is any difference between the anxiety responses of the boys and the girls, percentage of boys and girls falling in three levels of anxiety was counted and mean anxiety scores of the two groups were compared.

Table 1 shows the percentage of boys and girls in three levels of anxiety and their mean anxiety score. The results

indicate that in comparison to boys higher percentage of girls do suffer from high anxiety and their mean anxiety score (20.79) is also higher than that of the boys (18.02). Briefly speaking, in the present investigation the girls were found to be more anxious than the boys.

Table 1

Percentage of Boys and Grils in Low, Moderate and High Anxiety Groups and Their Mean Anxiety Scores

	N	Low Anxiety Croup	Moderate Anxiety Group	High Anxiety Group	Mean Anxiety Score
Girls	250	16.40	58.80	24.80	20.79
Boys	250	26.80	60.40	12.80	18.02

In order to answer the second question that whether the attitude of the mother toward child-rearing is related to anxiety reaction in children the obtained scores were analysed by analysis of variance.

Table-2 reports the scales on which significant differences were found between the mothers of high, moderate and low anxiety group children. Significant difference at .05 level was found in case of punishment whereas the mothers of the three groups differed significantly on marital conflict, overprotection and strictness at .001 level. In all cases, except strictness, the mean scores to the mothers of the high anxiety group of children were higher than the mean scores of the mothers of the moderate and low anxiety group of children. However, in the scale strictness the mean scores of the mothers of the low anxiety group of children exceeded the mean scores of the mothers of the other two groups.

Table 2

Scales on which Difference Between Mothers of Low, Moderate and High Anxiety Group Children were Significant

	Mean				
Scale	Low Anxiety Group	Moderate Anxiety Group	High Anxiety Group	F	P<
Punishment	27.61	28.00	28.58	3.13	.05
Marital Conflict	22.83	24.37	26.17	27.07	.001
Over Protection	22.93	22.90	24.95	19.82	.001
Strictness	20.82	19.76	18.25	8.75	.001

Table-3

Scales on which Mothers of Low, Moderate and High Anxiety Group Boys Differed Significantly from Mothers of Low, Moderate and High Anxiety Group Girls

		Mean				
Scale	Sex	Low Anxiety Group	Moderate Anxiety Group	High Anxiety Group	F	p<
Fostering Dependency	Girls	13.88	13.47	13.29	3.25	.05
	Boys	13.25	13.08	13.74		
Age of Training	Girls	12.04	18.85	11.51	8.82	.001
	Boys	11.03	11.56	12.37		

Table 3 shows the scales on which mothers of low, moderate and high anxiety group of boys differed significantly from mothers of low, moderate and high anxiety group of girls. On the scale fostering dependency differences were significant at .05 level and on the scale age of training, significant difference was found at .001 level. Results provided in Table 3 indicate that the higher

was the mothers score on the scale fostering dependency the lower was the anxiety in girls. Opposite trend was found in case of boys. Result also indicates that the more positive was the mothers attitude toward early training the lower was the anxiety in girls whereas mothers of high anxiety group of boys scored higher than the mothers of low and moderate anxiety group of boys in this scale.

The scale encouragement of verbalization failed to differentiate significantly between the mothers of the low, moderate and high anxiety group children.

Discussion

Examination of the results of the present study indicate that girls in the urban areas of Bangladesh are more anxious than their counterparts our culture and social system are mostly responsible for these differences between the sexes. From the very moment of birth the female children are subjected to differential treatment. Girls are taught to conform, to be docile and to be dependent whereas the boys are taught to succeed, to achieve and to be independent. The girls in our society have restricted freedom and they are subjected to prejudices and religious bias. The girls stereotype role is thus inferior to the boys and therefore is undesirable. Lipsitt (1958) in a study found that children with poor self-concepts were more anxious than children with good self-concepts. It is highly possible that girls having inferior sex role may have poor self-concept and as a result they are more anxious than the boys.

When attitude of mothers of low, moderate are high anxiety group of children toward child-rearing were analysed significant difference were found between them on the scales-punishment, marital conflict, overprotection

and strictness. It was found that more punitive is the mother the higher is the anxiety in children. When the mothers use punishment as a technique of discipline they show little sympathy or attempt to understand the child's behaviour and most of the time, anger accompanies punishment, As a result the child feels the absence of a supportive and loving mother to whom he may turn for protection and succor and thus suffers from insecurity and anxiety. Mothers of high anxiety group of childern were found to earn highest score on the scale of marital conflict. Unhappy and dissatisfied parents have difficulty in teaching their children good adjustment. Their tension hinder them from providing relaxed easygoing social situation in which the child can learn that interpersonal relationships are rewarding. Instead they are likely to have tense unpleasant relation with other children which might result in creating anxiety in them. The results reveal that the higher was the scores of the mothers on the scale of over-protection the higher was the anxiety in the children. The over-protected children have great difficulty in maintaining friendship since other children are not so tolerant of their behavior as their mothers are. Sometimes they unsuccessfully use immature technique to attract the attention and are rejected by other children. Thus, over-protection might cause anxiety in children. The most interesting finding is that the more positive was the mothers attitude toward strictness the lower was the anxiety in children. It may be argued, that some degree of strictness is necessary for the proper development of a child. Baumrind (1967) suggests that authoritaive parental control is desirable. If the parents are willing to impose restricition in areas in which they have greater knowledge or insight, such discipline gives the child the opportunity to explore his envionment and interpersonal competence without the anxiety associated with the inexperience in

conforming to the demands and needs fo others associated with extreme permissiveness.

Further analysis of the results show that when the mothers earned highest scores on the scale fostering dependency, anxiety was the least in the girls but was highest in the boys. Our culture emphasizes independence, initiative and success more for boys than girls. Girls are expected to conform whereas boys are expected to stand out. So when the mothers foster depencency in girls this is consistent with the social expectation and does not create anxiety in them. Higher scores on the scale of age of training indicate mothers expectation that the child should reach developmental goal at an accelerated pace. In the present investigation it was found that mothers emphasizing early training have girls with low anxiety but boys with high anxiety. It may be argued that as the physical development of the girls take place at a quicker pace than the boys they can satisfy the mothers by being trained at an accelerated rate and thus can avoid conflict with the mothers and thereby can avoid anxiety. Boys on the other hand, face difficulty in meeting mothers demand of early training and therefore, they show higher anxiety reactions.

Finally, it may be said that granting the maxim that relation between different factors does not necessarily establish cause and effect relationship, one is tempted to conclude from the findings of this study that the mothers attitude toward child-rearing is one of the most important antecedent conditions for anxiety reaction in children. Therefore, modification of unfavourable attitude of the parents toward child rearing is suggested for minimising this unconstructive and undesirable emotional reaction.

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PATTERNS OF ADOLESCENT SELF-IMAGE IN BANGLADESH

Muhammad Nazmul Haq

Understanding adolescents' self has been a great concern to the developmental psychologists. This self of the adolescent can be understood by considering how adolescents view themselves. The adolescent's or teenager's opinion about himself is one more fact about that "self" rather than a definitive pronuncement about its reality (Offer et al., 1981a). By the way of discovering self, psychologists always stand outside as observer and rely mostly on inferences from behaviour. Thus, most of the views on adolescents and their selves came forward on the basis of psychoanalytic principles and observing abnormal individuals who visited clinics for treatment (Gardner, 1956). Theoreticians and clinicians as well as patients have tended to assume that adolescence in itself is psychologically so loaded that, even under the best circuimstances turmoil can be expected (Offer et al., 1981b). Besides, it was a common belief of the eminent psychologists, right from the beginning of this century, that adolescence is a time of storm and stress (Hall, 1904 ; A, Freud, 1958 ; Blos, 1962 ; Deutsch, 1967).

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Theoretical work has pointed to the importance of self during adolescence (Erikson, 1950). In order to understand this self of the normal adolescents few empirical studies are available. Thus, the prevalent view that the adolescence is a time of great stress and turmoil has been ritained as recently as 1980 (Rabichow and Sklansky, 1980). Now the qeustion arises, whether this time of life is inherently tumultuous. By the attestation of cerain developmental studies on normal adolescents (Douvan and Adelson, 1966; Offer and Offer, 1975; Rutter and others, 1976) it was becoming apparent that turmoil is relatively uncommon. Therefore, attempts were made to study how far this turmoil is present among the normal adolescents (Offer et al. 1981a, Offer et al., 1984). In their studies Offer and others observed that the vast majority of the adolescents in the United States and other countries are well adjusted, have good relation with their families and friends an accept the values of society. Similar studies are also available in different countries conducted on the basis of the same principle as derived by Offer and his colleagues. In order to verify the existence of such stress and turmoil in themselves of the adolescents of Bangladesh the study has been replicated by adopting the same Test (Offer Self-Image Questionnaire, OSIQ) and technique (Offer et al., 1982).

Self-Image : Definition and Construct

The term self as is used here means only the observed person's phenomenological experience of self, the "Me". Theoreticians like Wylie (1974) and Rosenberg (1979) also defined the term in the same way. Kelly (1963)

thought it to be a way of thinking about an object that happens to be one's self. Rosenberg (1979) also thought it as an attitude because of its stability over time and situation, the later defined self-image as "The totality of the individual's thoughts and feelings having reference to the self as an object". Therefore by adopting this definition various aspects of an individual such as his psychological feeling, social thoughts, familial thoughts etc. can be considered as self-image. Patersen (1981) used then term self concept and self-image interchangably to phenomenological organization of individuals' experience and ideas about themselves in all aspects of their life. Self-image is generally conceptualized on a positive-to-negative continuum and it approaches to the measurement of multidimensionality of verious domains of life.

Purpose of the Study

The purpose of this study was to determine whether the old concept of disturbance in self-image, the stress and turmoil, is an integral part of adolescence among the teenagrs of Bangladesh.

The Bengali version of the Offer Self-Image Questionnaire (OSIQ) was administered to the students of classes IX to XII taken from three secondary schools (Two boys and one girls) and two colleges (both boys and girls). All these five institutions were situated in urban areas in Dhaka and neighbouring district of Tangail. The schools and colleges were selected on the basis of a - priori

judgement where majority of the students come from middle to upper middle classes. While administering the OSIQ in each school or college about 85 to 90 percent of the students in each class were found present and the questionnaire was administered to all of them. Necessary explanations and instructions were given to the students as per the OSIQ Manual. The filled in answer sheets were then scrutinized and the incomplete or faulty responses were rejected. A total of 362 answer sheets of the subjects were found valid for final scoring. The subjects were classified into two groups as younger adolescents, within the age range of 13 to 15, and the older adolescents, within the age range of 16 to 19 years.

The Questionnaire

The OSIQ was originally developed by Offer and Sabshin (1963) and later developed by Offer et al., (1981). The test was originally devised with two assumptions, that it would evaluate functioning in multiple areas of teenagers' life of which one can be mastered by them while failing to adjust in another, and second, that the psychological sensistivity is sufficiently acute to provide valid self description (Offer et al., 1982). The test was translated into Bengali and then the translated version was translated back into English and was checked for its accuracy and modified.

The OSIQ consisted of 130 items covering eleven areas of adolescent life called scales. The eleven scales and their corresponding number of items are as follows :

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No.	Tile of the Scale	No. of Items
1.	Impulse Control	10
2.	Emotional Tone	10
3.	Body and Self-Image	10
4.	Social Relationships	10
5.	Morals	10
6.	Sexual Attitudes	10
7.	Family Relationships	20
8.	Mastery of the external world	10
9.	Vocational and Educational Goals	10
10.	Psychopathology	15
11.	Superior Adjustment	15

Every item consisted of a six point scale ranging from one to six. Such as: Describes me very well, Corresponds to one ; Describes me well, Corresponds to two ; Describes me fairly well, Corresponds to three ; Does not quite describle me, Corresponds to four ; Does not really describe me at all, Corresponds to six. Thus the lowest score on the item implies the superior adjustment and the highest score indicate poor adjustment. In order to eliminate the response bias i.e., similar response to all items, positive and negative statements were adopted.

Results

The results of the study have been furnished under the title of five selves of the adolescent, namely : the Psychological Self, the Social Self, the Sexual Self, the familial Self and the Coping Self. All the 130 items of the test cover these five selves and comprise the eleven scales

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of OSIQ. Each group of scales describes a specific self. Results are computed in terms of the percent of the respondents' endorsement i.e., 'Describes me very well', Describes me well' and Describes me fairly well', for each item or statement. Comparative analyses of the responses are shown between the younger and older adolescents and between the sexes of either groups.

The Psychological Self

The psychological self comprises the adolescent's concerns, feelings, wishes and fantasies. Three scales constituting this self are Impulse control, Emotional tone and Body and self-image, which concern teenager's sense of control over impulse, the emotions, their experiences and conception of their own body.

Results indicate that in the scale of Impulse control majority of the adolescents have good control over their impulses. Out of the nine items five statements indicate better adjustment among the majority of the adolescents. Vast majority of these normal teenagers reported to have good control over themselves. They can remain calm under pressure and can keep even temper most of the time. Besides, more than 50 percent of the adolescents carry many grudges and fits of feelings which they are unable to control. However, this sort of feeling may be considered to be the characteristics of normal adolescents which do not result form stress and turmoil as supported by the other statements. Age difference is prominent with better adjustment among older group. Gender differences indicate girls are poorly adjusted than the boys as a whole (Table1).

Table 1

The Psychological Self

1. Impulse Control : Percent Endorsement by the Adolescents

Item No.	Items	Younger		Older		Both Group	
		M	F	M	F	M	F
1.	I carry many grudges	68	60	64	70	66	65
8.	I "Lose my head" easily.	32	53	32	50	32	51
17.	At times I have fits of crying and/or laughing that I seem unable to control.	58	70	63	68	60	69
34.	I can take criticism without resentment.	67	58	69	64	68	61
50.	I get violent if I don't get my way.	58	68	67	55	62	62
59.	Even under pressure I manage to remain calm.	64	62	68	75	66	68
69.	I keep an even temper most of the time.	71	66	77	73	74	69
81.	I fear something constantly.	43	40	41	46	40	43
123.	Usually I control mlyself.	79	77	83	85	81	81

In the scale of Emotional tone,most of the statements indicate that majority of the adolescents are well adjusted to their emotonal world also. Large majority of the teenagers express they are happy and can enjoy life, seldom they feel sad an lonely. The most of the adolescents do not think that they are inferior to others. Only less adjustment in their emotional tone is that they feel tense most of the time and their feelings are easily hurt. In a few statements age and sex differences were largely observed, such as, younger adolescents are less tense and anxious than the older adolescents and in either group girls are more tense and anxious than the boys. On the other hand the younger group enjoys life more than the older group

and in the younger group the girls seem to be happier than the boys while in the older group boys are happier than the girls (Table 2).

Table 2

II. Emotinoal tone : Percent Endorement by the Adolescents

		Younger		Older		Both Group	
Item No.	Items	M	F	M	F	M	F
12.	I feel tense most the time	52	62	62	74	5	67
23.	I feel inferior to most people I know.	34	32	31	33	33	32
32.	Most of the time I am happy.	78	81	77	80	77	81
38.	My feelings are easily hurt.	60	78	59	80	59	79
44.	I feel relaxed under normal circumstances.	42	37	34	43	38	40
54,	I am so very anxious	42	49	40	55	4	52
66.	I feel so vary lonely.	41	45	32	52	37	48
68.	I enjoy life.	70	76	66	60	68	69
100.	Even when I am sad I can enjoy a good joke.	66	56	70	53	68	55
130.	I frequently feel sad.	30	40	27	49	29	44

So far the Body and self-image is concerned, the adolsecents are found well adjusted with their recent body change and self-image. Majority of the teenagers are proud of their body and satisfied with the changes in the body. Few of them feel that they are ugly and unattractive. Large majority of the teenagers are also satisfied with the future picture of themselves. Agewise it is observed that in the recent past younger adolescents are less worried about their health than the older adolescents but both the groups are equally satisfied with their recent changes. The satisfaction in boys is much more higher than the girls (Table -3)

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Table 3

The Psychological Self Image

III. Body and Self-Image : Percent Endorsement by the Adolescents

Item No.	Items	Younger		Older		Both Group	
		M	F	M	F	M	F
6.	The recent changes in mybody have given me some satistaction.	18	54	79	54	80	54
27.	In the past year I have been very worried about my health.	59	46	68	52	63	49
42.	The picture I have of myself in the future satisfies me.	87	85	90	88	88	86
57.	I am proud of my body.	68	59	55	52	62	56
72.	I seem to be forced to imitate the people I like.	61	70	65	58	63	64
82.	Very often I think I am not at all the person I would like to be.	38	55	51	70	44	62
90.	I frequently feel ugly and unattractive.	37	30	33	49	35	39
94.	When others look at me they must think that I am poorly developed.	28	29	33	29	31	29
99.	I feel strong and healthy.	54	47	41	50	48	49

The Social self

The social self of the adolescents are often described in terms of the friend they have, the company they keep and the values they hold. The social self of the adolescents, are measured by the help of three scales such as, Social relationships Moral attitude and Vocational-educational goals.

The scale of social relationship assesses object relationship and friendship patterns. In this scale out of nine statements all indicate adolescents' superior social adjustment such as, large majority of the teenagers think

that other people like them and very few of them tend to mind to being corrected by other as they can learn from it. Majority of them can enjoy any public gathering and do not find any difficulty in making friendship. However, age and sex differences are not very prominent which indicates that both the boys and girls are more or less equally adjusted in social relationship (Table 4).

Table 4
The Social Self
IV. Social Relationships : Percent Endorsement by the Adolescents

		Younger		Older		Both Group	
Item No.	Items	M	F	M	F	M	F
13.	I usually feel out of place at picnics and parties.	34	29	35	33	35	31
52.	I think that other people just do not like me.	28	32	31	17	29	25
65.	I do not mind begin corrected since I can learn from it.	90	99	97	98	93	99
62.	I find it extremely hard to make friends.	33	32	31	25	32	29
75.	I prefer being alone than with other kids of my age.	20	27	24	32	22	29
86.	If others disapprove of me get terribly upset.	57	60	58	71	57	65
88.	Being together with other people gives me a good feeling.	90	82	78	85	84	83
113.	I do not have a particularly difficult time in making friends.	63	75	69	70	66	73
124.	I enjoy most parties I go to.	80	84	87	89	83	86

Regarding the morals of the adolescents it is found that majority of the respondents have good morals in the context of their social self. Out of ten statements of the

moral scale in seven items good majority of the adolescents expressed their high moral values. For example large majority of them do not endorse the item "Telling the truth means nothing to me", and they deny that they do not care how their actions affect others. Age difference in morality is not very prominant but the sex difference in both the senior and junior group is clearlly significant with stronger moral values in females (Table 5.)

Table 5

The Social Self

V. Morals : Percent Endorsement by the Adolescents

		Younger		Older		Both Group	
Item No.	Items	M	F	M	F	M	F
5.	I would not hurt someone just for the "heck of it'.	62	69	58	65	60	67
30.	I would not stop at anything if I felt I was done wrong.	78	84	79	80	78	83
40.	I blame others even when I know I was at fault.	31	18	29	20	30	19
48.	Telling the truth meansnothing to me.	15	31	21	24	18	28
67.	I do not care how my actions affect others as long as I gain something.	36	17	23	10	30	14
74.	For me good sportsmanship in school is as important as winning a game.	67	79	62	70	64	75
83.	I like to help a friend whenever I can.	89	96	90	92	89	94
92.	If you confide in others you ask for troubles.	41	53	60	58	51	55
116.	Eye for an eye and tooth for tooth does not apply for our society.	40	52	42	52	41	52
120.	I would not like to be associated wiht those kids who 'hit below the belt'	69	84	85	88	76	86

In the scale of vocational-educational goal an overwhelming majority of the teenagers depict that they possess high values for vocational and educational goals. Large majority of the adolescent indicated their seriousness to work and they are sure that they will be

proud of their future profession. An overwhelming majority of the respondents endorsed the item "A job welldone gives me pleasure", which shows the work ethic in its purest form. Result indicates that age and sex differences in responses are negligible i.e., both the boys and girls hold more or less the same attitude towards the vocational-educational goals (Table 6).

Table 6
The Social Self
VI. Vocational-Educational Goals : Percent Endorcement by the Adolescents

		Younger		Older		Both Group	
Item No.	Items	M	F	M	F	M	F
14.	I feel that working is too much responsibility for me.	76	73	87	78	81	75
20.	Only stupid piople work.	9	13	9	10	9	11
37.	I am sure that I will be proud about my future profession.	82	84	78	67	80	76
46.	I would rather sit around andloaf than work.	12	19	21	22	16	20
58.	At times, In think about what kind of work I will do in the future.	95	93	96	89	95	91
63.	I would rather be supported for the rest of my life than work.	19	8	9	5	14	7
70.	A job well done gives me pleasure.	94	98	89	93	92	99
79.	I feel that there is plenty that I can learn from others.	88	93	89	90	88	92
104.	At times I feel like a leader and feel that other kids can learn from me.	51	50	43	52	47	51
115.	School and studying mean very little to me.	40	21	31	15	36	18

The Sexual Attitudes

The sexual attitude scale of the sexual self intends to measure the adolescent's feelings, attitudes and behaviour towards the opposite sex. The general findings of this scale

show that normal adolescents are not afraid of their sexuality. Nearly three forth of the adolescents do not think that "The opposite sex finds me a bore". Even more than three fourth of the adolescents conceive that they are sexually quite fit. Large majorty prefers to have a friend of opposite sex. However, the younger adolescents are little more conservative in sexual behaviour than their older counterparts. And girls in both the groups seem to be more conservative than the boys (Table -7).

Table 7

The Sexual Self

VII. Sexual Attitudes : Percent Endorsement by the Adolescents

		Younger		Older		Both Group	
Item No.	Items	M	F	M	F	M	F
10.	The opposite sex finds me a bore.	30	27	29	18	2	22
16.	It is very hard for a teen ager know how to handle to sex in a right way.	50	61	63	75	56	67
28.	Dirty jodes are fun at times.	33	23	45	32	39	27
77.	I think gorls/boys find me attractive.	56	68	69	60	62	65
80.	I do not attend sexy shows.	61	60	48	75	54	67
91.	Sexually I am way behind.	29	31	25	16	27	24
97.	Thinking or talking about sex frightens me.	48	71	37	45	43	59
117.	Sexual experiences give me pleasure.	71	72	80	85	75	78
122.	I often think about sex.	28	20	45	27	36	23

The Familial Self

Adolescent's feelings about their parents, siblings and other relatives are the major concern of this scale, i.e. it

measures the emotional atmosphere in the home. General findings in this scale indicate that large majority of the teenagers are well adjusted to their family they love their parents and their patents love them. The generation gap so often written about is not in evidence among the majority of the adolescents They perceive their patents as being satisfied with them and they do not seem to possess any bad feeling towards their parents. There seems to have no significant difference between the selves of younger and older adolescents as well as the boys and firls as a whole (Table - 8).

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Table 8

The Family Self

VIII. Family Relationships : Percent Endorsement by the Adolescents

Item No.	Items	Younger		Older		Both Group	
		M	F	M	F	M	F
4.	I think that I will be a soure of pride to my parents in the future.	89	91	91	82	89	87
9.	My parents are almost always on the side or someone else, e.g., my brother of sister.	33	38	30	39	32	39
15.	My parents will be disappointed with me in the future.	12	9	9	12	11	10
21.	Very often I feel that my father is no good.	12	11	13	12	13	11
24.	Understanding my parents is beyond me.	27	25	26	21	27	23
26.	I can count on my parents most of the time.	74	72	84	74	79	73
51.	Most of the time, my parents get along with each other.	87	88	88	86	8	87
55.	When my parents are strict, I feel that they are right even if I get angry.	83	91	87	18	85	87
60.	When I grow up and have a family, it will be in at least a few ways similar to my own.	49	58	48	37	49	49
64.	I feel that I have a part in making family decisions.	87	92	80	69	84	93
71.	My parents are usually patient wih me.	87	95	88	91	87	93
73.	Very often parents don't under - stand a person because they had an unhappy childhood.	21	15	26	2	2	17
85.	Usually I feel that I am a bother at home.	16	18	18	16	17	17
87.	I like one parent much better than the other.	38	48	34	34	36	42
95.	My parents are ashamed of me	9	6	8	5	8	6
102.	I try to stay away from home most of the time.	39	25	32	22	35	24
106.	I have been carrying a grudge against my parents for years.	14	15	11	18	13	17
112.	Most of the time my parents are satistied with me.	89	85	75	85	82	85
118.	Very often I feel that my mother is no good.	14	6	11	9	12	7

The Coping Self

Every individual possesses certain amount of strength of adaptation. This adaptation or coping intends to adjust an adolescent's internal and/or external world by integrating all his psychological tools. This coping self has been derermined with the help of three scales such as Mastery of the external world, Psychopathology and Superior adjustment.

In the scale of Mastery of the external world the adolescents tend to demonstrate their adaptive attitude towards the immediate environment. Result indicates that large majority of the respondents are well adapted to their working situation and are hopeful about their future. In their opinion an overwhelming majority of the adolescents agree that they can learn almost anything provided they put their mind. Also large number of teenagers indicated their commitment to work which in fact demonstrate their eagerness to achieve bright future. Very little differences is observed in the responses of older and younger adolescents and between sexes of either groups (Table -9).

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Table 9

The Coping Self

IX. Mastery of the External World : Percent Endorsenment by the Adolescents

Item No.	Items	Younger		Older		Both Group	
		M	F	M	F	M	F
3.	Most of the time I think the world is an exciting place to live in.	80	79	70	72	75	76
19.	If I put my nind to it, I can learn almost anything.	98	96	100	99	99	98
35.	My work, in general, is at least as good as the work of the guy next to me.	79	88	86	80	82	80
41.	When I want samething, I just sit around wishing I could have it.	41	45	37	41	39	44
76.	When I decide to do something I do it.	78	85	86	78	82	82
103.	I find life an endless series of problems without solutions in sight.	36	36	37	46	37	40
105.	I feel that I am able to make decisions.	90	86	90	86	90	86
109.	I feel that I have no talent whatsover.	26	21	24	15	25	18
128.	I am fearful of growing up.	19	27	10	15	15	22
129.	I repeat things continuously to be sure that I am rightt.	73	88	76	86	74	87

Overt and psychopathologic characteristics of the normal adolescents are determined by the scale of Psychopathology. Out of 14 psychopathological symptoms in almost 10 cases more than 50 percent of the adolescents denied that they have psychopathological symptom. However, a significant minority of the normal adolescents indicate some maladjustment in coping

abilities. There seems to be very little difference in the responses of younger and older adolescents but gender difference is evident in either groups with poor adjustment in females than their male counterparts (Table 10).

Table 10

The Coping Self

X. Psychopathology : Percent Endorsement by the Adolescents

Item No.	Items	Younger		Older		Both Group	
		M	F	M	F	M	F
2.	I am afraid that someone is going to make fun of me.	29	37	23	27	26	33
22.	I am confused most of the time.	31	51	42	54	36	53
29.	I often blame myself even when I'm not really at fault.	43	43	46	53	44	48
31.	The size of my sex organ is normal.	86	89	85	90	86	90
36.	Sometimes I feel so ashamed of myself that I just want to hide in a corner and cry.	32	31	35	27	34	29
45.	I feel empty emotionally most of the time.	41	36	36	41	39	39
61.	I often feel that I would rather die than go no living.	29	48	27	47	28	48
78.	Other people are not after me to take advantage of me.	41	47	45	43	43	46
93.	Even though I am continuously on the go, I seem unable to get things done.	42	45	30	50	36	48
96.	I believe I care tell the real from the fantastte.	66	62	68	49	67	56
108.	When I enter a new room I have a strange and funny feeling.	66	74	67	74	66	74
111.	When I am with people I am both ered by hearing strange noise.	53	45	52	52	52	49
126.	I do not have any fears which I cannot understand.	61	75	67	80	64	77
127.	No one can harm me just by not liking me.	74	75	74	74	74	75

The scale of superior adjustment in the coping self tends to measure how well the adolescent copes with himself and his world. Out of 14 items incorporated in this

scale almost 12 items indicated that large to overwhelming majority of the normal adolescents are well adjusted to their world of superiority. For example more than 80 percent of the teenagers are not afraid of their competitive society and more than 90 percent of them try to reharse in advance to meet their future situation. Large majority of the adolescents also denied that they do not enjoy solving difficult problems and most of them take it a challenge in dealing with new intelletual subjects. Age difference in the response indicates that the solder adolescents are more adjusted to their superior self than the younger group. Similarly girls in each group show better adjustment than the boys (Table 11).

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Table 11

The Coping Self

XI. Superior Adjustment : Percent Endorsement by the Adolescents

		Younger		Older		Both Group	
Item No.	Items	M	F	M	F	M	F
11.	If I would be separated from people I know, I feel that I allwould not be able to make a go of it	53	76	59	73	56	75
25.	I do not like to put things in order and make sense of them.	25	10	20	10	23	10
39.	When a tragedy occurs to one of my friends, I feel sad too.	89	94	91	97	90	96
43.	I am a superior student in School.	91	94	95	90	93	92
49.	Our society is a competitive one, and I am not atraid of it.	82	85	87	85	84	85
53.	I find it very difficult to establish new friendships.	51	41	38	38	45	40
56.	Working closely with another fellow never gives me pleasure.	19	19	24	26	22	22
84.	If know that I will have to face a new situation, I will try in advance to find out as much as possible about it.	90	95	93	89	92	92
89.	Whenever I fail in something I try to find what I can do in order to avoid another failure.	87	91	86	97	96	94
107.	I am certain that I will not be able to assume responsibilities for myself in the future.	20	9	13	18	17	13
110.	I do not rehears how I might deal with a real coming event.	38	49	34	35	36	43
114.	I do not enjoy solving difficult problems.	31	23	22	20	27	21
121.	Worrying a little about one's future helps to make it work out better.	81	92	92	95	86	93
125.	Dealing wiht new intellectual subjects is a challenge for me.	95	97	97	98	96	98

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Discussion

The psychological development of the normal adolescents was always regarded by most of the psychologists as well as clinical preactitioner, since last hundred years, that adolescence is a period of turmoil, dramatic mood swings and rebellion (Hall, 1904 ; A. Freud, 1958; Eriksen, 1950). Actually the turmoil theory tends to show that the adolescents normally undergo significant distuption in their personality organization which ultimately leads to different tumultuous behaviour. Unfortunately this theory of stress and turmoil could not be based on vast empirical observation. Most of the data of this theory, as the psychologists acknowledge, came from the psychoanalysis and their abnormal patients. Even in recent literatures similar views about normal development of adolescents are expressed (Bols, 1967; DSM 3rd. ed, 1980).

This study was undertaken with a view to examine the existence of such tumultuous behaviour among the normal adolescents. Data suggest that large number of normal adolescents from a variety of backgrounds are characterized as confident, happy and self-satisfied. The responses to the test items reviewed in this study reveal a great deal about the phenomenology of adolescents grouped by age and sex. However, the data clearly indicate that vast majority of the normal adolescents are not in the theories of turmoil. Psychologically the teenagers are quite sound, they have good control over their impulses and emotions and they are satisfied with their body and self-image. Significant minority of the adolescents who indicated their tension and dissatisfaction are not the total picture of normal adolescents, their reactions to the test items may be treated as situational and/or temporary.

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The social behavior of the adolescents studied here are not found chaotic as it was conceived by many psychologists. Most of the teenagers are well adjusted to society and family. The moral values among the adolescents are also found very high which is beyond the imagination of turmoil theory. Sexually, the adolescents are not perverted or possess any negative attitude towards sex. In addition, most report having adopted without undue conflict to the bodily changes and emerging sexuality brought on by puberty.

Coping with the adolescents' internal and external world focuses on the strength an individual possesses. Investigtion into the inner entity of their selves clearly shows that large majority are well adjusted and face life situation with little fear and with a reasonable amount of confidence. Mafority of the adolescents are also found to be free from any psychopathological symptoms.

Finally, data on self-image of a large number of Bangladeshi normal adolescents are generated in this study. Analysis of this data and comparing it with other variables like age and gender it can be concluded that the Bangladeshi boys and girls can neither be categorized as disturbed or tumultuous, rather they are happy, socially acceptable and well adjusted people.

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QUANTITATIVE THINKING AS A FUNCTION OF AGE AND SOCIAL CLASS*

Sultana Banu

Introduction

Quantitative thinking ability of children depends on their clear understanding about the abstract notion of number (Piaget, 1952) and on the clear idea about the quality of the number to do with successfully, independent of the objects numbered (Issacs, 1960). It speaks of a child's ability to understand that a particular dimension of an object may remain invariant under changes in other irrelavant aspects of the situation (Piaget, 1950, 1957). The said logical thinking develops gradually as function of an internal process called 'equilibration' -a process of inner reorganisation in cognitive field of the individual depending heavily on activity and experience interactions. Elkind (1961) verified the above assumption.

An exhaustive review of studies on Piaget's concept of children's numerical thinking ability by conservation of number and quantity-concept revealed the validity of his assertions about developmental changes in numerical operations (Zaman, 1976). Estate's (1956) disagreement with Piagetian group of researchers in favour of a gradual ontogenic development (Flavell, 1963) was turned down by Dodwel (1960) on the ground of Estates' unfamiliarity with

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* Processed after the author's research paper accepted for presentation at the 3rd International Conference on Thinking held at Honululu in January, 1987.

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Piaget's work. Cross-cultural study reports (Hyde, 1959; Goodnow, 1962) supported the sequence of conservation of skills while did not confirm the significance of any particular age.

Findings of several researchers confirmed the effect of family-life style for socialisation on the development of hypothetico deductive thinking among children (Floyed, 1979; Though, 1977; Wason, 1977; Luria, 1976; Cole and Scribner, 1974; Halford, 1972; Wason and Johnson - Laird, 1972).

In Bangladesh formal schooling and careful informal socialisation are made available more for the children who belong to middle class families than who belong to lower class families. The said different procedures for child rearing and socialising in two different socio-economic strata of Bangladesh people are expected to create different effects on their children's quantitative concept development, while the said expectation needs varification. As an initial effort, the present study was undertaken to probe in the said differential effect on the development of quantitative thinking among children in Dhaka City, and to examine the validity of Piagetian measures with sample concerned.

METHODOLOGY

Sample

Altogether 48 children, within 5-7 years age range, were selected by purposive sampling method from different areas of Dhaka City, from middle and lower socio-economic classes, equi proportionately. The guardian or parent of the 24 middle class children were found in the occupations of teaching, clerical service, small business, and legal counselling; while of the 24 lower class children

belonged to the families of rickshaw pullers and daily wage earners through unskilled work.

Design

For two different experimental sessions with three age-groups and two social groups, the sample was set in the 3 x 2 factorial design quantitative analysis of scores.

Tools

Data were collected in two different experimental sessions, viz., with sticks and with liquids, after Piaget's number an quantity games formed of the following materials :

(i) 24 small sticks, and (ii) 2 drinking water glasses to contain 16 oz., 2 other to contain 8 oz, a tall narrow glass, and a tumbler of water.

Procedure :

After Elkind (1961), the game or a give task consisted of comparing two amounts of each material at a time, i.e.., for achieving success the 'O' was to judge whether a particular object is both 'longer and larger' than the other object; or, 'longer an wider'; or 'X is half of Y and X is twice Y': and the like. The directive was given through very comonly used quantity, terminology, in Bengali.

All samples were tested with 'sticks' and 'liquid' for three types of Quantity, Individually, at weekly intervals respectively. Three types of quantity were 'gross quantity' 'dimension' and 'extent'. The tasks were administered with the help of two oriented psychology sophomores and with the help of willing mothers; and in the midst of respective child's residence—inside room or courtyard. Each experimental session took 30-40 minutes per child.

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Scoring

Each successful comparison was given 1 score whereas unsuccessful comparison was given O score. For each type the maximum score was 2 and for each set of game the maximum score was 3 x 2 = 6.

Discussion of the Results

The data (Table1) revealed superiority of 7 yr children group in their performance with 'sticks' (M = 4.63) and with 'liquids' (M = 3.31) over the children groups of both 6 yr and 5yr. In general, the children of middle class achieved higher success-scores in doing with both 'sticks' (M = 4.75) and 'liquids' (M = 3.04) respectively. Accordingly, it may be inferred that in doing with Piagetian test materials, in exploring the quantitative thinking ability, the performance trends of the children kept pace with their respective chronological development; while the socialisation style of middle class families played a definite role on the development of quantitative thinking in the children reared up there in.

Table 1

Mean Scores of Children in two test Sessions.

	With Stick				With Liquid			
Age class	5yr	6yr	7yr	X	5yr	6yr	7yr	X
Middle	3.88	4.75	5.63	4.75	1.63	3.88	3.63	3.04
Lower	1.24	1.25	3.63	2.04	1.03	2.00	3.00	2.04
	—	—	—		—	—	—	—
X	2.56	3.00	4.63		1.33	2.94	3.31	

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Table 2

Summary of ANOVA test with the Children's Scores

SV	SS				MS		F value	
	Stick	Liquid	stick	liq.	Stick	Liquid	Stick	Liquid
Age	37.79	47.62	2	2	18.90	23.81	7.66*	10.82*
Class	88.02	16.33	1	1	88.02	16.33	35.21*	7.42*
Age x class	4.55	2.80	2	2	2.28	1.40	.91	.64
Error	105.12	92.40	42	42	2.50	2.20		

* P<.01

The finding (Table 2), in both cases, reatined the assumption that quantitative thinking is a function of age and social class— in terms of the expressed F values with statistical significance. The interaction between 'age' and 'social class' was found here statistically nonsignificant, 91 and .64 respectively.

Conclusion

The results of the present study indicated that age is an important variable in determining quantitative thinking of the children, in the light of the Piagetian tasks given to them. The findings provided scientific support to the facts reported by several other investigators who did with same test materials (Piaget, 1952) ; Isaacs, 1960; Elkind, 1961, 1970). More success became evident in higher age groups - minimum in 5 years children and maximum in 7 years children, in both Piagetian tasks given.

The findings substantiated, further, the effect of training and education of middle class families in inculcating idea of quantity concept and logical relationship in quantitative problem - soliving as reported

earlier by Floyd (1979), Though (1977), Luria (1976) and others.

In the present investigation, quantitative thinking was not found as a product of age – class interaction jointly; while their independent role became evident in the children's scores. The findngs suggested the need for providing required attention to children of 5–7 years age-range by the teachers for developing arithmetic skill in them while paying due consideration to the advantages and disadvantages in their respective socio-economic backgrounds to generate quantity concept and basic ideas for arithmethical calculation. The conclusions drawn up the present investigator remain open to verification, by furthur study involving larger sample with more precise stratification.

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(v)

Studies On Personality And Clinical Psyehology

1.	**M. Anisur Rahman and Sybil B.G. Eyesnck.**	:	Natianal Differences in Personality:
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NATIONAL DIFFERENCES IN PERSONALITY : BANGLADESH AND ENGLAND

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and

Sybil B. G. Eysenck,

The Eysenck Personality Questionnaire (EPQ) has now been standardised in several countries. (Eysenck, Adelaja & Eysenck, 1977; Iwawaki, Eysenck & Eysenck, 1977; Lojk, Eysenck & Eysenck 1979; Eysenck & Seisdedos, 1978; Dimitriou & Eysenck, 1978; Tarrier, Eysenck & Eysenck, 1980; Eysenck, Gupta & Eysenck, in press). Our purpose, in fully reanalysing the questions of our personality Questionnaire in other cultures, is to verify that the scales apply in that country and that the items comprising these are appropriate. In some cultures like that in Yugoslavia (Lojk, Eysenck & Eysenck, 1978) there was complete similarity while in others like Greece (Dimitriou, Eysenck & Eysenck, 1978) several items were inappropriate and had to be substituted by enough other items to obtain a reasonably reliable scale for use in Greece.

Experiment and Analysis

The 101 item version of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) was used. This purports to measure psychoticism or toughmindedness. Extraversion. Neuroticism and Lying or Social Desirability responses. It contains all the 90 items of the published questionnaire plus 11 unscored items which we encourage

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other countries to use, for standardisation, so that there are spare items should these be required for substitution.

From past experience in work on cross-cultural comparisons we had anticipated that item substitution might be necessary when attempting to provide a valid personality questionnaire in Bangladesh. Hence we suggested that, in addition to some unscored items already on the 101 item EPQ, the Bangladesh psycologists should add some possible substitute items which seemed relevant to the scales but more appropriate for the Bangladesh culture. Fourteen additional items were accordingly added at the end, making 115 items in all. The whole questionnaire was translated into Bengali and a variety of subjects were asked to complete it. They were clearly of all ages but due to a clerical misunderstanding Bangladesh and English numerals were mixed up so that we were unable to interpret them accurately and decided not to punch and use age for our final analysis. Our sample comprised 544 males and 531 females.

The Bangladesh data was analysed in the same way as the English data had been analysed, i.e. product-moment correlations between items were factor analysed by principal components, rotated by Varimax and then by Promax, using only the first four factors for rotation. When this was done using the 115 items, considerable disturbance was observed in the factor structure and it was decided to use only the original 101 items of the EPQ and leave the fourteen extra items out. This factor analysis, on only 101 items, had to be performed anyway in order to obtain factor comparisons of the Bangladesh and English data, and apperared to be much more acceptable in all respects. Specifically, the loadings now cohered in a much more meaningful way and allowed the choice of a

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reasonably suitable scoring key which yielded satisfactory reliabilities.

Seven out of the 25 items defining the English Psychoticism factor were unsatisfactory in the Bangaldesh group but the suitable ones were found and substituted leaving 21 items on the Bangladesh Psychoticism scale. Five out of the 21 Extraversion items had to be dropped but no substitute items were available and the scale had to remain with only 16 items. Four out of 23 Neuroticism items were unsuitable but three others were found and added thus making the scale up to 22. Six items of the 21 item Lie scale were inadequate and four acceptable items made the scale viable with 19 items.

Having arrived at this new scoring key, (given in Table 1).

TABLE -1

Bangladesh Weight Matrix

P YES: 4, 23, 27, 35, 47, 51, 55, 65, 69, 74, 81, 88, 93, NO : 6, 11, 19, 39, 59, 67, 78, 100	21
E YES : 1, 5, 10, 15, 18, 26, 34, 42, 50, 54, 58, 77, 92, 96. NO : 22, 46.	16
N YES : 3, 7, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 60, 64, 68, 71, 72, 75, 82, 86, 89, 97.	22
L YES : 2, 9, 13, 21, 30, 37, 61, 87, 99, NO : 25, 41, 45, 49, 53, 57, 76, 80, 91, 95.	19

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the question was whether the reliabilities would remain reasonably high in view of the curtailed scales. Table 2 gives these reliabilities which seem to be quite acceptable. Table 3 gives the means and standard deviations of the

Table 2

Reliabilites

	P	E	N	L
Males	.70	.77	.78	.80
Females	.70	.79	.80	.78

Table -3

Means and Standard Deviations :

	P	E	N	L
Maless	3.25±2.81	10.34±3.32	8.51±4.20	11.71±4.07
Females	2.69±2.60	9.98±3.56	9.52±4.51	12.54±3.83

Intercorrelations :

a) Factors	Males	Females	b) Scales	Males	Females
PE	-.12	.12		.00	.14
PN	.19	.16		.21	.17
PL	-.36	-.25		-.43	-.39
EN	-.10	-.08		-.13	-.06
EL	-.01	-.10		-.09	-.10
NL	-.31	-.29		-.35	-.27

factors and scales of each of the variables. Male means are higher on P and E and lower on N and L than those of the females, which is in line with British norms. To check the extent to which Bangladesh and British factors agree, we ran factor comparisons following the method described in Eysenck and Eysenck (1969). These are given in Table 4 from which it can be seen that all the indices lie above .95.

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which we have arbitrarily adopted as our minimum level for admitting comparisons between cultural groups. Hence Correspond- ence between the factors in the two countries

Table 4

Factor Comparisons 1

	P	E	N	L
Bangladesh Males vs Bangladesh Females	.998	.984	.998	.980
English Males vs Bangladesh Males	.989	.991	.996	.991
English Females vs Bangladesh Females	.963	.977	.969	.988

is very high indeed and gives us full confidence in the applicability of the scales in Bangladesh.

Finally, we computed reduced scales of items which British and Bangladesh scales had in common and reran means and standard deviations on each factor. These are given in Table 5.

Table 5

Means & Standard Deviations of reduced scales :

	P	E	N	L
Bangladesh Males	2.64±2.36	10.34±3.32	7.10±3.73	8.81±3.42
Bangladesh Females	2.15±2.20	9.93±3.56	8.23±4.00	9.54±3.29
British Males	2.66±2.25	9.98±4.21	7.54±4.42	4.33±2.72
British Females	1.71±1.68	11.21±3.55	10.51±4.46	4.24±3.29

All female mean differences are significant beyond the .001 level while only the Lie Scale difference is significant for males. Some indication of comparability across

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cultures. There are no statistically singificant differences for the males, except on the lie score on which they are very much higher. Females, on the other hand, are significantly different on all means to the English females, being higher on P and L and lower on E and N.

Discussion

The results of the analyses on the Bangladesh data seem very enouraging. Some of the items which changed from one scale to another may well have done so due to a change of imphasis in the wording of the translation and all substitute items made reasonable sense content wise.

The reliabilities were all above .7 which indicates that the scales can be used with confidence in this form on the Bangladesh population. Should they now wish to test psychiatrically abnormal or delinquent groups they have norms standardised in their own culture to compare them with.

Since the scales are now somewhat changed from the English ones, we computed means and standard deviations for English and Bangladesh groups using only those items both had in common. This turned out to be 18, 16, 19 and 15 items for P, E N and L respectively. Because of the brevity of these scales the comparisons cannot be taken too seriously but one obvious difference is on the Social Desirability scale for both sexes. This is a very real difference due probably to current social mores. People in England, America and the West generally are increasingly permissive and are encouraged to be truthful about their feelings and attitudes no matter how selfish or antisocial these may be whereas elsewhere in Europe, Asia, Africa and especially in India and Bangladesh, society seems to

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have maintained its old fashioned attitudes raising their children to value non-permissivieness and stressing a need to "put themselves in the best light." This higher mean on the Lie scale has been consistently observed by us in all our crosscultural studies and even extends to foreigners tested in England.

Since there is a significantly negative correlation both with Psychoticism and the Lie scale and with Neuroticism and the Lie Scale (Table - 2), nations with high Lie scores leave the interpretation of their other mean scores in some doubt. It could well be, therefore, that P and N scores of the Bangladesh groups are in reality higher than they care to admit. The important thing seems to us to be that within their culture Bangladesh people can compare groups on the personality dimensions : this seems of greater interest than cross-cultural comparisons which must be tentative in view of the high Lie scores and the brevity of the comparable Scales.

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BIRTH ORDER, SEX AND PERSONALITY TRAITS

Hamida Akhtar Begum, Sultana Banu, Rowshan Jahan and Roquia Begum

The observation that differential treatment and behaviour occur as a result of ordinal position among siblings has led a series of research in the area of birth order. The physiological, psychological and sociological correlates of birth order were explored in hundreds of studies. Following Schachter's (1959) observation of birth order effects on social affiliation, the relationship between birth order position and personality variables was investigated in several studies. Some studies noted that the first born children compared to later borns, are more affiliative (Desember 1964, Koenig, 1969), dependent (Warren 1966), liberal (Kilpatrick and Cauther 1969; Schwendiman etc. al. 1970) and susceptible to social pressures (Arrowood and Amoroso 1965; Sampson 1965; Warren, 1966). They were also found to have stronger need for approval (Moran 1967). In addition, first borns have been found to be more suggestible than later borns in social situations; more apprehensive in surroundings that arouse anxiety (Staples and Walters, 1966), exhibit greater intellectual attainment (Altus 1966; Breland 1973), and more easily influenced (Carrigan and Julian, 1966) than later-borns. Some other studies found that middle born children tend to be downward mobile with regard to aspirations and the youngest child compared to the oldest

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child, are more closely identified with the peer group (Douvan & Adelson, 1966). However, recent exhaustive review on the birth order effects by Schooler (1972) has pointed out some contradictory findings. For example, one study showed that first born children have higher need for autonomy (Sampson and Hancock, 1967), which contradicts dependency, and less need affiliation than the children born later (Becker & O' Brien 1969; Megurk and Lewis, 1972). No difference in need affiliation (Rosenfeld 1966; Masling 1966) and need achievement (Farley 1967, Rosenfeld 1966) were found in some other studies.

Although research results are not clear-cut, there is some evidence that there are some factors that may interact with birth order and may account for differences in birth order effects. One of such dominant interacting factors is the sex of child. One study showed that first borns compared to the later borns are more conforming only when they were males (Sampson and Hancock, 1967). Moran (1967) demonstrated that first-born females showed a higher need for social approval than later borns.

In Bangladesh, a recent study (Begum et. al., 1981)along this line attempted to estimate the differences in fifteen personality traits as measured in Edward's Personal Preference Schedulee. The study showed that female first borns are more affiliative, more succorant, less dominant, more nurturant, more change loving, and less heterosexual than the first born males. No differences however, were observed in case of other personality attributes. The study suggested that these differences betwen boys and girls may be due to cultural stereotypes of the perceived roles by them. In our culture, parents as well as society in general expect the first born males to be independent of self-reliant, responsible, achievement

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oriented, dominant and aggressive. In addition to this the pubertal physiological changes make the adolescent to be imperious in heterosexual relationships. First born adolescent girls, on the other hand, are expected to achieve most of the culturally determined feminine qualities such as dependency, nurturance, submissiveness, conforming behaviors and the like. In both the cases parents expect the oldest adolecents of both sexes to be truely masculine or feminine so that their younger brothers and sisters can easily achieve those developmental tasks by interatcing with them. Thus an interaction between sex and ordinal position may affect the personality development of children. However, no attempt has yet been made to investigate the differential effects of sex and ordinal positions in certain personality attributes of children in our culture. The present study was, therefore, undertaken to examine sex and birth order as variables determining differences in personality traits of tirst, middle and last borns.

Method

Subjects : The subjects of this study were 144 (72 male, 72 female) students of 1st and 2nd year HSC level in four colleges of Dhaka city. All of the students in their classes were to fill out a personal data sheet and Edwards Personal Preference Schedule (1959). Since the distribution of subjects according to birth order was markedly uneven, an equal number o subjects from larger samples of first borns, middle borns, and last borns were randomly selected for this study. Age of these subjects ranged from 16 to 19 years and all of them were from middle class families. Their number of siblings ranged from 2 to 10.

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Measures Used : A Bengali version of Edwards Personal Preference Schedule (Khanam, 1965) was used for assessing personality traits. The EPPS provides measures of 15 personality variables i.e. Achievement, Deference, Order, Exhibition, Autonomy, Affiliation, Intraception, succorane, Dominance, Abasement, Nurturance, Change, Endurance, Heterosexuality, and Aggression. The operational definitions of these traits, in brief, are as follows :

1. Achievement : To do one's best, to be successful, to accomplish tasks requiring skill and effort, to solve difficult problems and puzzles etc.
2. Deference : To get suggestion from others, follow instructions and to do what is expected, to praise others, to accept the leadership of others, to conform to custom etc.
3. Order : To have written work neat and organized, to keep things neat and orderly, to make plans before starting etc.
4. Exhibition : To have others notice and comment upon one's appearance, to talk about personal achievements, to be centre of attention etc.
5. Autonomy : To be able to come and go as desired, to be independent of others in making decisions, to do things that are unconventional etc.
6. Affiliation : To be loyal to friends, to make as many friends as possible, to do things with friends rather than alone etc.
7. Intraception : To analyze one's motives and feelings, to observe others, to put one's self to another's plaqce etc.
8. Succorance : To have others provide help when in trouble, to seek encouragement, to have others sympathetic and understanding about personal

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problems, to receive a great deal of affection from other etc.

9. Dominance : To be a leader in groups, to make group decisions, to persuade and influence others, to supervise and direct others' actions etc.
10. Abasement : To accept blame when things do not go right, to feel inferior to feel inferior to others in most respects.
11. Nuturance : To help firends when they are in trouble, to show a great deal of affection toward others etc.
12. Change : To do new and different things, to travel, to meet new people, to try new things, to perticipate in new things to perticipate in new fads and fashions.
13. Endurance : To keep at a job until it is finished, to work hard at a task etc.
14. Heterosexuality : To go out with members of the opposite sex, to engage in social activities with the opposite sex etc.
15. Aggression : To attack contrary points of view, to tell others what one thinks about them, to criticize others publicly to become angry, to get revenge for insults etc.

The Statements in the EPPS and the variables that these statements surport to measure have their origin in the list of needs by Murray (1938). It contained 225 pairs of items with printed instructions as to how to respond, The respondents were instructed to choose one from each pair and mark the answer on a separate answer sheet.

Another measure used along with the EPPS was a short questionnaire for obtaining infromation of birth order, their age, sex and other relevant bio-dta.

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Design : The study employed a 3 x 2 completely randomized design with 3 levels of birth order (First born, middle born, Last born) and 2 levels of sex (Male-Female) for analyzing 15 personality variables. Thus 15 two-way Analyses of Variance were done for this research.

Procedure : A Bengali version of EPPS was administered to the subjects in class room situation following the standard procedure. Subjects of the selected colleges were simply invited to take part in the research and all of them willingly accepted the invitation. Before starting the EPPS, a few questions concering their ordinal birth position and other bio-data were asked in the from of a short questionnaire.

Results

In order to examine the effects of ordinal birth position and sex on personality, subjects' scores on 15 personality traits as measured by EPPS were analyzed by 3 x 2 Analysis of variance for each trait. Results of these analyses, in which significant Fs were obtained, are presented in Tables 1 to 8.

Birth-order and Personality tratits :

Results of the Analysis of Variance for 15 traits revealed that the main effects of birth order were significant only for Exhibition ($F = 5.71$; $df = 2,138$; $p<.005$) (table 2) and Aggerssion ($F = 3.50$; $df = 2,138$; $p<.05$) (Table 8). That is, the need Exhibition and need aggression varied significantlly as a function of ordinal birth position. With regard to need Exhibition, last borns were found to have this need strongest ($M= 11.10$) followed by the middle borns ($M = 9.66$) and the first borns ($M = 15.31$) were in top position followed by the last born ($M = 14.10$) and first borns ($M = 13.52$). In other words, last borns were more exhibitionistic and middle borns were more aggressive

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than others. The main effects of birth order for others 13 traits were not statistically significant. Table 2 shows that Need Exhibition was also a joint function of sex and birth order as the interaction beween the two was significant (F = 5.64; df = 2, 138; p<.005). It was that for first borns and middle borns, need Exhibition was stronger with male than females. but for the last borns, this need was stronger with females than males.

Sex and Personality Traits :

With regard to sex, the results of the Analysis of Variance revealed its significance for 8 out of 15 traits considered in this study (Tables 1 to 8). The traits for which main effects of sex were significant are : Achievement (F = 12.64; df = 1, 138; p<.001), Exhibition (F = 6.64; df = 1, 138; p<.02, Affiliation (F=6.30; df= 1,138; p<.02), Succorance (F=5.84; df=1,138;p<.02) dominace (F = 23.96; df = 1, 138; p<.001), Change (F = 14.90; df = 1, 138; p<.001) Heterosexuality (F = 23.31; df = 1, 138,; p<.001), and Aggression (F = 5.02; df = 1, 138; p<.02). In descriptive terms, males were found to be more achieving, more exhibitionistic, more domineering, more heterosexual, more aggressive, less affiliative, less succoorant and less change loving than females.

Table 1.

Summary of the Analysis of Variance for Need Achievement scores.

SV	df	MS	F
Sex	1	200.70	12.64*
Birth order	2	21.76	1.37
Sex x Birth order	2	1.21	.08
Within Cells	138	15.88	

*P<.001

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Table 2.
Summary of Analysis of Variance for Need Exhibition Scores.

SV	df	MS	F
Sex	1	152.11	6.64*
Birth order	2	130.72	5.71**
Sex x Birth order	2	129.26	5.64**
Within Cells	138	22.88	

*p<.02
**p<.005

Table 3
Summary of the Analysis of Variance for Need Affiliation Scores.

SV	df	MS	F
Sex	1	121.00	6.30*
Birth order	2	9.25	.48
Sex x Birth order	2	4.14	.21
Within Cells	138	19.18	

*o<.02

Table 4.
Summary of the Analysis of Variance for Need Succorance Scores.

SV	df	MS	F
Sex	1	119.18	5.84*
Birth order	2	5.38	.26
Sex x Birth order	2	12.12	.59
Within Cells	138	20.40	

*p<.02

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Table 5.

Summary of the Analysis of Variance for Need Dominance Scores.

SV	df	MS	F
Sex	1	383.51	23.96*
Birth order	2	11.36	.71
Sex x Birth order	2	6.36	.39
Within Cells	138	16.00	

*p<.001

Table 6.

Summary of the Analysis of Variance for Need Change Scores.

SV	df	MS	F
Sex	1	261.36	14.90*
Birth Order	2	29.50	1.68
Sex x Birth order	2	17.17	.97
Within Cells	138	17.54	

*p<.001

Table 7.

Summary of the Analysis of Variance for Need Heterosexuality Scores.

SV	df	MS	F
Sex	1	935.34	23.31*
Birth Order	2	28.01	.69
Sex x Birth order	2	97.21	2.42
Within Cells	138	40.11	

*p<.001

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Table 8.

Summary of the Analysis of Variance for Need Aggression Scores.

SV	df	MS	F
Sex	1	57.54	5.02**
Birth order	2	40.08	3.50*
Sex x Birth order	2	23.70	2.07
Within Cells	138	11.44	

**p<.02

*p<.05

Discussion

The results of the present study indicated that birth order may be considered an important variable determining need Exhibition and need Agression. First borns were found to manifest least need Exhibition and need Aggression. In contrast, Exhibition was strongest with the last borns and Aggression was strongest with the middle borns. Unlike many other studies (Schachter, 1959; December, 1964; Koenig, 1969) first borns were found to be equally affliative as middle borns and last borns. Birth order was not found to make any difference in many other personality traits such as achievement, dominance, autonomy etc.

Compared to birth order, sex was found to be a stronger variable determining differences in personality traits. Male and female college students were found to differ significantly in eight out of fifteen personality traits studied in this research. As expected in our culture, males were found to be more achieving more domineering more aggressive, more heterosexual and more exhibitionistic

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than females. Likewise, females were found to be more succorant, more affiliative and more change loving than males.

It was thought that birth order may interact with sex which may account for differences in personality traits of males and females in different ordinal positions. The interaction was significant in only one trait i.e. Exhibition. Female last borns and male first and middle borns had this trait stronger than their counterparts. Other traits were not found to be joint functions of sex and ordinal position.

In summary, the effects of birth order on personality were not as prominent in the study as it was thought to be. This suggests that the treatment of parents and others may not have been as differential to children in different birth positions as it appears so as to make significant difference in personality traits. However, further research is needed to substantiate any hypotheses that we may propose. Besides, birth order effects are complicated by a number of related varibles such as family size, age spacing, parent-child relationship and such others. Systematic probing into the interaction of these variables with ordinal position is necessary for clarification of birth order effects. Moreover crosscultural studies are necessary to indicate whether there is any pattern of birth order effects in different cultures. Such findings are expected to help understand the dynamics of birth order effects on personality variables.

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AN INVESTIGATION OF THE IMPACT OF RELIGION ON PERSONALITY AND SELF-CONCEPT

Mir. Fakhruzzaman and Shaheen Islam

Current studies on human behaviour have emphasized the influence of socio-cultural conditions in man's development and behaviour patterns. The social norms and values which to a great extent are based on religious mores and taboos, hence, religion is thought to play an important role in shaping and moulding human personality.

Religious belief system is an aspect of believer's personality. Few attempts have been made to determine the influence of religiosity on various aspects of human development, i. e., personality characterstics (Coates 1973), self development (Bender, 1958), self esteem and alienation (Greenberg, 1973), neurotic pattern (Mangayi, 1972). One problem with research on religiosity is that results have been found to be ambiguous.

There are two conflicting psychological accounts of relationship between religiosity and stability. Foir example, Stanley (1964), McClain (1978), Sturgeon and Homley (1979) suggested that religiosity was associated with greater personal stability and adjustment. On the other hand, Cowen (1954). Roberts (1965) and Willson and Miller (1968) suggested that religiosity was associated with lower self esteem, greater anxiety and high neuroticism. Mowever, data obtained from the studies of

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Brown (1957). Heintzetman and Fehr (1956), Fehr and Heintzetman (1977) and Pearson et. al. (1981) supported neither the hypothesis that religiosity was an expression of instability nor the hypothesis that religiosity fostered stability.

In the field of psychiatry, some writers have stressed the positive influence of religion in helping the disabled (Garret, 1955; Palmer, 1962), while others attributed to religion a predominately negative influence. It has become apperent that to understand human behaviour emphasis should be placed upon the analysis and explanation of religious aspects of human behaviour along with the material aspects of life.

As our country has a Muslim majority with a religious bias, it is reasonable to expect that religion, specially Islam, might play a significant role in shaping and moulding personality pattern of the people of Bangladesh. Stephen (1976) indicated that among the adherents of Islam the religious role is more salient and therefore personality is less differentiated from the self-concept than among members of various non-muslim comparison groups.

The present study was, therefore, conducted to investigate whether religion has any differential impact on the development of personality traits and self-concept of the people of Bangladesh. Since religiosity seemed to vary siginificantly between younger and older age groups (Youngmans 1973), age of the respondents was considered as the second variable in the study. In this respect it was hypothesized that there would be significant difference between religious and non-religious respondents in respect of personality traits and self-concept as measured in this study.

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Methods

The study employed there types of questionnaires. A preliminary questionnaire to differentiate religious from non-religious persons and two test questionnaires to measure personality traits and self-concept of the respondents.

Subjects

The sample consisted of 30 religious and 30 non-religious adult male subjects with minimum educattional qualification-graduate. Religious and non-religious respondents were selected on the basis of the preliminary questionnaire, which comprised of 5 statements with biases towards or against religion and a 6-point scale to indicate one's own religious commitments. Those who had complete faith in Allah and practise religion regularly were considered as religious persons, while those who neither believe in Allah nor practise religion were considered as non-religious persons. Respondents were classified into two age groups : 25-40 years and above 40 years. Attempts were made to keep income level of the respondents constant.

Description of the Questionnaires

A set of structured questionnaire was prepared to measure different parsonality pattern and self-concept.

Measure of Personality Pattern : The questionnaire to assess different personality patterns was constructed on the basis of two standardized tests-Sixteen Personality Factor questionnaire (16PF) and Minnesota Multiphasic Personality Inventory (MMPI). Eight personality traits were selected : (1) Sober vs. Happy-go-Lucky, (2) Expedient vs Conscientious, (3) Placid vs. Apprehensive, (4) Relaxed vs. Tense, (5) Depressive. (6) Hysteric, (7) Psychopathic

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deviate and 8) Hypomanic. The first four were taken from 19PF and the remaining four from the MMPI.

The selected items were translated and modified to suit our culture. To test the validity and appropriateness of the given items to measure a particular trait, interjudge agreement was found out among 5-judges. Alternative answers were provided for each items and the respondents were instructed to give their honest reactions to each statement by marking the chosen alternative.

Measure of Self-Concept : To assess the development of self-concept a scale to measure social self, developed by Professor M.H. Kuhn (1954), was used. It was a free response questionnaire where the respondents served their own items revealing whether they are more socially oriented or ego-centred persons. The questionnaire involved a single question-Who am I? The respondents were instructed to describe themselves by the help of 20 statements in response to the said question. The responses were categorized into three groups (1) Socially oriented response, (2) Ego-centered response and (3) Poetic response. Scores or 2, 1 and 0 were ascribed to these three catagories, respectively.

Procedure

The respondents were approached personally with a request if they would self administer the questionnaire. The questionnaires were later on collected from the respondents on appointment. The respondets were asked to fill in the omitted items, if any.

Two-way analysis of variance by the method of unweighted means were used to analyze the data statistically.

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Results

The purpose of the present study was to investigate the differential effects of religion and age on the personality traits and the self concept of the respondents. Table 1 presents the mean scores and the standard deviations of eight personality traits and self-concept.

Table 1

Means and standard deviations of eight personality traits and self-concept of Religious and Non-religious respondents belonging to two age groups.

Variable	Religious Group		Non-Religious Group	
	Above 40 N = 16	Below 40 N = 14	Above 40 N = 10	Below 40 N = 20
Factor F :	M: 12.68	13.64	13.10	12.70
	SD : 2.77	3.80	5.08	2.64
Factor G :	M : 15.56	15.07	14.00	14.20
	SD : 1.89	5.33	2.49	1.66
Factor O :	M : 9.81	9.50	8.60	10.60
	SD : 3.19	3.80	4.56	4.00
Factor Q4 :	M : 9.38	10.64	10.40	12.25
	SD : 4.15	3.15	4.27	3.76
Scale II :	M : 5.69	6.00	6.40	5.84
	SD : 1.48	1.36	1.80	2.30
Scale III :	M : 4.69	4.57	5.60	5.35
	SD : 1.57	2.06	2.24	2.17
Scale IV :	M : 4.13	4.50	4.90	4.20
	SD : 1.76	2.97	1.44	1.88
Scale IX :	M : 2.19	3.00	2.80	3.45
	SD : 1.28	1.06	0.87	1.35
Self-Concept	M : 24.63	23.43	13.40	16.10
	SD : 5.03	9.97	9.82	10.25

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Tables 2 to 10 present the analyses to variance of scores of different personality traits and self-concept scale of religious and non-religious respondents belonging to two different age groups.

Table 2

Summary of analysis of variance for Factor F (Sober vs Happy-go-lucky) of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	52.81		
Between Group				
A (Religion)	1	0.07	0.0	0.077
B (Age)	1	0.08	0.08	0.089
AB	1	0.45	0.45	0.496
Within Group	56	51.46	0.92	

Table 3

Summary of analysis of variance for Factor G (Expedient vs Conscientious) of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	47.35		
Between Group				
A (Religion)	1	5.23	5.28	7.26 *
B (Age)	1	0.85	0.85	1.18
AB	1	0.85	0.85	1.18
Within Group	56	40.42	0.72	

P<.01

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Table 4

Summary of analysis of variance for Factor O (Placid vs Apprehensive) of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	65.53		
Between Group				
A (Religion)	1	0.01	0.01	0.008
B (Age)	1	0.72	0.72	0.637
AB	1	1.33	1.33	1.170
Within Group	56	63.47	1.13	

Table 5

Summary of analysis of variance for Factor Q_4 (Relaxed vs Tense) of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	70.68		
Between Group				
A (Religion)	1	1.73	1.73	1.50
B (Age)	1	2.42	2.42	2.16
AB	1	4.24	4.24	0.08
Within Group	56	62.47	1.12	

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Table 6

Summary of analysis of variance for Scale II (Depression) of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	15.45		
Between Group				
A (Religion)	1	0.10	0.10	0.40
B (Age)	1	0.00	0.00	0.00
AB	1	0.24	0.24	0.96
Within Group	56	14.21	0.25	

Table 7

Summary of analysis of variance for Scale III (Hysteria) of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	18.04		
Between Group				
A (Religion)	1	0.72	0.72	2.40
B (Age)	1	0.04	0.04	0.13
AB	1	0.00	0.00	0.00
Within Group	56	17.28	0.20	

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Table 8

Summary of analysis of variance for Scale IV (Psychopathic Deviate) of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	19.18		
Between Group				
A (Religion)	1	0.05	0.05	0.147
B (Age)	1	0.03	0.03	0.088
AB	1	0.29	0.29	0.580
Within Group	56	18.81	0.34	

Table 9

Summary of analysis of variance for Scale IX (Hypomania) of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	6.98		
Between Group				
A (Religion)	1	0.27	0.27	2.53
B (Age)	1	0.53	0.53	4.81*
AB	1	0.01	0.01	0.09
Within Group	56	6.17	0.11	

*P<.05

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Table 10

Summary of analysis of variance for Self-Concept of religious and non-religious respondents belonging to two different age groups.

Source	df	SS	MS	F
Total	59	442.93		
Between Group				
A (Religion)	1	86.12	86.12	13.98*
B (Age)	1	7.92	7.92	0.09
AB	1	3.80	3.80	0.61
Within Group	56	345.09	6.16	

*P.<.01

The obtained results indicate that the only personality factor that significantly differentiates the religious and the non-religious respondents is Factor G (Expedient vs. Conscientious). It implies that religion has a significant impact on the mean score of the respondnts. Religious persons were found to be more conscientious and less expedient than the non-religious persons. No significant differences were observed between the two groups on other personality factors.

Similarly 'age' factor had a significant effect only in case of Scale IX (Hypomania). The younger group (6.45) was more likely to be hypomanic than the older group (4.94).

In respect to the Self-Concept scale, the results obtained indicate that religion had a significant influence on the mean scores of the respondents. Religious persons were found to be more society oreinted than the non-religious persons. Age was also not a significant variable in this study.

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It should be noted that none of the interactions were significant.

Discussion

The major objective of the present study was to see whether religion has any differential impact on the development of personality traits and self-concept. The results obtained from the self-concept scale unambigiously supported the contention that the religious persons were more socially oriented than the non-religious persons who had a tendency to give more personal and even poetic responses. Such results were expected as religion aims at moulding the individual's moral life as well as social order in a healthy-pattern to establish peace, contentment and well being in all spheres of life.

Regarding personality traits, religious persons were found to be more conscientious and less expedient than the non-religious persons and this finding was in the expected direction. Religious conviction leads people to good work and act as a force towards perfection. Hence it was reasonable to expect that religious persons would be more exacting in character, dominated by sense of duty, persevering, responsible and moralistic. The obtained result was in agreement with such hypothesis.

Failure to find any significant difference in other personality traits may be due to the fact that the present study employed tests developed and standardized in a western country or due to the possible defects in the precision of selection of religious and non-religious persons and use of relatively small sample.

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Though the overall results on personality traits failed to show a significant difference, the general trend was in the hypothesized direction and there was no evidence supporting the contradictory hypotheses that religious persons are more neurotic, less self assured and unstable.

However, before drawing any conclusive statement it is necessary to consider each trait seperately. It may be possible that in certain personality traits there is actually no significant difference between the religious and non-religious persons. Moreover, a further study with a larger sample may be conducted to throw more light on the contention of the present study.

Summary and Conclusion

In order to investigate the differential impact of religion on the human behaviour the present study examined the differences in eight personality traits and self-concept between 30 religious and 30 non-religious respondents, selected on the basis of few statements with biases for and against religion, It was hypothesized that there would be significant differences in personality traits and selfconcept between the two comparison groups. Age of the respondents was another variable included in the study. A set of questionnaires specially developed for the purpose of the study was used. The results indicated a significant difference in case of Factor G (Expedient vs Conscientious) between the two groups at .01 level of significance. Regarding other personality traits no significant results were found. In case of self-concept, the religious persons gave significantly more socially oreiented response than the non-religious persons. It was suggested that personality tests for measuring the traits included in this study should be standardized with a

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nation wide sample of our country and more sophisticated technique for differentiating religious from non-religious persons should be developed. Further planning of research in this area may contemplate over a selection of a larger sample. Despite its various pitfalls the study throws sufficient light on a new approach to the understanding of human behaviour.

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DELINQUENT AND NON-DELINQUENT ADOLESCENTS: A COMPARATIVE STUDY IN RESPECT OF INTELLIGENCE, ADJUSTMENT AND SELF CONCEPT *

Anisur Rahman and Sayeda Farzeen Huq

Very little research work has been done on delinquents in Bangladesh. The few attempts that were made are mostly the works of Sociologists, Criminologists and Social Workers. Psychologists and Psychiatrists are yet to come forward. No proper attack on the problem of dilinquency is possible without gathering relevant facts. Western research can only serve as guidelines. Data for Bangladesh must come from studies carried out in the country itself.

Kibria (1976) remarks that it is impossible to determine the nature and extent of juvenile delinquency in the absence of adequate crime reports. He adds that it is difficult to place absolute reliance on the figures and classification of juvenile delinquency.

The most common kinds of offences in our country involve bank robbery, dacoity murder, theft, antisocial conduct etc. Besides such violations of law, youths have also been found to display a tendency to take alcohol and narcotics. But the extent of consumption of drugs has not been interpreted statistically. It is apparent that in Bangladesh delinquency is no longer confined to the lower socio-economic group. Juveniles from upper class families also pose a serious threat to law and order. A statement of juvenile delinquents (up to 20 years) who were arrested during the period January-December 1981, follows;

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* From *Bangladesh J. of Psychology*, 1984, 7, 145-156. *Reprinted by permission of the author.*

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Table 1

Statement of Juvenile Delinquents Arrested during the period Jan-Dec 1981.

Nature of Delinquency	No. o Juvenile Deliquents arrested	Nature of Delinquency	No. of Juvenile Delinquents arrested.
Dacoity	192	Rape	7
Burglary	444	Illegal possesion	
Robbery	69	of arms	3
Theft	674	Smuggling	340
Murder	118	Kidnapping/Abduction	22
Rioting	738	Culpable homicide	
		others	2654
Source : CID. Jan., 1982		Total :	5316

The statement shows that the most frequently committed crimes involve rioting, burglary, theft, dacoity, and smuggling. Records of juvenile offenders convicted for committing offences of various nature over a period of years were not available. Statistics of juvenile offenders convicted for committing offences against property from 1872 to 1979 are given below :

Table 2

Juvenile Offenders convicted for Committing Offences Against Property from 1972-1979

Years	1972	1973	1974	1975	1976	1977	1978	1979
No. of Convicts	361	416	106	134	212	152	113	76

Source : CID December 1981

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Data shown here reveal that there was an upward trend after liberation of the country though reasons are not known for sure. Records of 1978 and 1979 show a marks downward trend.

Correctional Measures

The Borstal School in Murapara, Narayanganj establihsed in 1949, is not functioning now. A correctional institute under the name of 'Kishore Oporadhi Shangshadhani Kendra' established in 1974 at Tongi, is the only one of its kind in Bangladesh functioning since 1978. It has maximum capacity for 200 Juvenile delinquents and at present there are 150 juveniles in the institute.

The purpose of this study was to find out the relationship of delinquency with intelligence, self concept and adjustment (home adjustment, health adjustment, submissiveness/self assertion, emotionality, hostility/ friendliness and masculinity/femininty). This was a comparative study between delinquents and non-delinquents ranging in age from 13-16$\frac{1}{2}$ years. Detailed case histories were also analyzed in order to obtain further information.

The hypotheses tested in this investigation were :

1. Non-delinquents would perform significantly better than the delinquents on the Verbal scale. performance scale and the Full scale IQ of the WISC-R.
2. Delinquents as a group would perform better on the Performance scale as compared with the Verbal scale.

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3. Delinquents compared to non-delinquents would have a significantly lower self concept.
4. Delinquents compared to non-delinquents would have a lower level of home and health adjustment, would be more assertive, more emotional, more hostile and less masculine.

The Investigation

The subjects for this study were 15 delinquents and 30 non-delinquents. The delinquents were all inmates of the correctional institute at Tongi, Dhaka. The non-delinquents were selected from two different schools. One group of 15 non-delinquents came from a high standard school of Dhaka city and another group of 15 non-delinquents came from a low standard school of Dhaka city. The high standard school had predominantly middle and upper class boys while the low standard school had largely lower middle and lower class boys.

All the three groups of subjects were matched in age, sex education, racial composition and religion. Socio-economic status was also another of the controlled variables but this remained true until the second group of non-delinquents were selected from the high standard school. These subjects operated as a second control group. The inclusion of this group was not planned in the initial design. The reason for the inclusion of this group was that some of the subjects in the first control group were found to have delinquent characteristics. There were thus three groups of subjects and they were all treated as standard as groups in the analysis. The two non-

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delinquent groups in the low and high standard schools are designated non-delinquent (1) and non-delinquent (2) in this study.

Measures

Case history : Afsaruddin's (1965) questionnaire (with some changes).

Intelligence : The Wechsler Intelligence Scale for Children-Revised (WISC-R) developed by David Wechsler (1974) and later translated and adapted by Huq (1980).

Self Concept : Children's self concept scale originally developed by Piers Harris (1964) and later translated into Bengali by Begum and Huque (1976).

Adjustment : Bell Adjustment Inventory-Revised (1962) (Student form developed by Bell, 1962) and translated later at the Department of Psychology, University of Dhaka.

Results

Statistical analyses were done separately on the data obtained from histories intelligence tests. adjustment inventory and the self concept scale. The two non-delinquent groups were treate separately in the computations because significant differences were found between the two in many respects.

Not all the data from the case history were treated with Chi square tests (also true of number and percentage distribution tables). Only those relevant to the study were considered. A total number of 23 variables were taken into account.

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x^2 between different variables of case history data and delinquency/non-delinquency are persented in table 3.

Table 3

x^2 Between Different Variables of Case History Data and Delinquency Non-Delinquency.

Variables	x^2
Father's educational qualification	13.44*
Mother's educational qualification	6.14*
Father's occupation	22.03**
Parent's marital status	1.22
Respondent's family size	5.13
Income of parents	6.12
Housing conditions	17.46***
Nature of discipline at home	11.54
Person punishing most	16.98***
Nature of puninshment at home	31.4****
Opinion about father	24.74***
Opinion about mother	29.39***
Frequency of physical punishment	17.75*
Frequency of going to movies	26.99***
Type of movie liked most	21.49***
Goes to movies	12.59
Respondent's source of money for movies	33.55****
Respondent's friend's source of money for movies	32.96****
Acquaintace with liquor houses etc.	15.75****
Respondent's friend's acquaintance with such areas	7.35*
Respondent visits such areas	19.08****
Truancy in respondent's grade	39.61****
Boys having the habit to steal in school	30.90****

* P<.05
** P<.02
*** P<.01
**** P<.001

The findings of table 4 reveal that there is a significant difference in home adjustment between the groups.

Table 4

Summary of Abalysis of Variance For Home Adjustment of Delinquents And Non-Delinquents

SV	Df	SS	MS	F
Total	44	1124		
A	2	270.01	135.01	6.64*
S/A	42	853.99	20.33	

*P<.01

Table 5 gives a summary of the result of analysis of variance for health adjustment of deliquents and non-delinquents (1) and (2).

Table 5

Summary of Analysis of Variance for Health Adjustment of Delinquents and Non-Delinquents

SV	Df	SS	MS	F
Total	44	1392.44		
A	2	459.51	229.26	10.34*
S/A	42	932.93	22.21	

*P<.001

Table 5 reveals that health adjustment is a significant variable between delinquents, non-delinquents (1) and non-delinquents (2).

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The table below gives a summary of the result of analysis of variance for emotionality of delinquents and non-delinquents (1) and (2).

Table 6

Summary of Analysis of Variance Result for Emotionality of Delinquents and Non-Delinquents

SV	Df	SS	MS	F
Total	44	2004.02		
A	2	382.54	191.27	4.951*
A/S	44	161.66	38.61	

* P<.05

Table 6 shows that emotionality is a significant factor between the groups. Table 7 gives a summary of analysis of variance result for hostility/friendliness of delinquents, non-delinqents (1) and non-delinquents (2).

Table 7

Summary of Analysis of Variance result for hostility/friendliness of Delinquents and Non-Delinquents

SV	Df	SS	MS	F
Total	44	721.24		
A	2	330.71	165.36	17.78*
S/A	42	390.53	9.30	

*P<.001

Table 7 demonstrated that hostility/friendliness is a significant variable among delinquents and non-delinquents.

Table 8 gives a summary of the result of analysis of variance for masculinity/femininty of delinquents, non-delinquents (1) and non-delinquents (2).

Table 8

Summary of Analysis of Variance Result for Masculinity/Femininity of Delinquents and Non-Delinquents

SV	Df	SS	MS	F
Total	44	405.8		
A	2	144.94	27.47	11.67*
S/A	42	260.86	6.21	

*P<.001

Table 8 demonstrates that femininty is a significant variable between the groups. A summary of the analysis if variance for varbal IQ of delinquents and non-delinquents (1) and (2) are shown in table 9

Table 9

Summary of Abalysis of Variance for Verbal IQ of Delinquents and Non-Delinquents

SV	Df	SS	MS	F
Total	44	14092.58		
A	2	10101.39	5050.70	53.15*
S/A	42	3991.19	95.03	

*P<.001

Table 9 reveals that verbal IQ of the WISC-R is a significant factor of difference between the groups.

Table 10 shows a summary of analysis of variance result for performence IQ of delinquents and non-delinquents (1) and (2)

Table 10

Summary of Analysis of Variance for Performance IQ of Delinquents and Non-Delinquents

SV	Df	SS	MS	F
Total	44	7675.91		
A	2	388.86	1940.86	21.48*
S/A	42	3794.19	90.34	

*P<001

Table 9 shows that performance IQ of the WISC-R is a significant factor of difference between the groups.

Table 11

Summary of the Analysis of Variance result for the Performance and the Verbal IQs of delinquents.

SV	Df	SS	MS	F
Total	29	3142		
A	1	1032.54	1032.54	13.711*
S/A	28	2109.44	75.34	

*P<.001

Table 11 shows that delinquents performed significantly better on the verbal scale of the WISC-R as compared are the perfomance scale.

Table 12 shows a summary of the analysis of variance for self concept scores of delinquents, non-delinquents (1) and non-delinquents (2).

Table 12

Summary of Analysis of Variance for Self Concept of Delinquents Non-Delinquents

SV	Df	SS	MS	F
Total	44	4838.8		
A	2	814.81	407.41	4.251*
S/A	42	4023.99	95.81	

*P<.05

Table 12 reveals that self concept varies significantly between delinquents and non-delinquents.

Hypothesis 1: Non-delinquents would perform significantly better than the delinquents on the verbal scale, performance scale and the full scale IQ of the WISC-R.

In the verbal scale IQ $\overline{X}$ (Del). =73.87, $\overline{X}$ (N.Del(1) = 87.13, $\overline{X}$ (N.Del (2) = 110.13) the performance scale IQ $\overline{X}$ (Del) = 62.13 $\overline{X}$(N. Del)=69.53, $\overline{X}$ (N.Del). (2) =84.47) and the full scale IQ $\overline{X}$ (Del.) =65.27, $\overline{X}$ (N. Del.) = 75.4 $\overline{X}$ (N.Del. (2) =96. 13) there were significant differences between the delinquents and non-delinquents at. 001 level.

Hypothesis 2: Delinquents as a group would perform better in the performance scale than in the verbal scale. Analysisindicated signifcantly (P<.001) contradictory results X (Verbal IQ)= 73.87, X (N.de. (2) =60.67) differ significantly (P<.05) with respect to self concept.

Hypothesis 4: Delinquents as compered with non-delinquents would have a lower level of home adjustment, would be more assertive, would have lower health adjustment, would be more emotional, more hostile and less masculine.

Delinquents deffered significantly from the non-delinquents on health adjustment, (P<.001 $\overline{X}$ (Del.) = 16.4 $\overline{X}$ (N.Del) (1) = 9.67. $\overline{X}$ (N.Del. (2) 9.4) home adjustment,

(P<.01,$\overline{X}$ (Del.) = 14.67, $\overline{X}$ (N.Del. (1)= 11.47, $\overline{X}$ (N.Del. (2)=8.67) in emotionality, (P<.05 $\overline{X}$ (Del.)= 22.06, $\overline{X}$ (N.Del.) (1)=17.6, $\overline{X}$ (N.Del. (2)=14.4) and in hostility/friendliness (P<.001, $\overline{X}$ (Del.)=20.08, $\overline{X}$ (N.Del. (1)= 18.13, $\overline{X}$ (N.Del (2)=14.2). A significant difference was however not obtained in submissiveness/self assertion (F=.62) between the delinquents ($\overline{X}$=11.27) and non-delinquents ($\overline{X}$ (N.Del. (1) =12.87. $\overline{X}$ (N.Del. (2)=11.33). With respect to masculinity/femininity the twqo groups of subjects-delinquents ($\overline{X}$=8.4) and n0n-delinquents ($\overline{X}$ (N.Del. (1)=12.07, $\overline{X}$ (N.Del. (2)= 12.2) were found to differ significantly (p<.001) on the femininity level.

Discussion

Intelligence and Juvenile Delinquency

The analysis of verbal IQ scores and performance IQ scores of delinquents and non-delinquents revealed that delinquents scored significantly (p<.001) lower than non-delinquents in both the scales. The hypothesis on the verbal scale was formulated on the ground that the peculiar environment in which delinquents live in this country affect their IQ. The prediction was not made on the assumption that intelligence has a direct. causal relationship whth delinquency.

The reason for the marked discrepancy between the delinquent and non-deliquent (2) groups on the verbal scale seems to be at least partially attributable to their school curricula. Verbal scale items are mostly items that are taught in school. However, they may also involve knowledge that one acquires from the out of school environment--home, friends, general reading etc. The delinquent and for that matter the non-delinquent (1) in the present investigation have not been fortunate enough

to get the opportunity to gather such knowledge from his surroundings. Here we are stating a possibility assuming that these boys were born with average intelligence. And we feel that this could actually be proved true of at least a few cases, if not many of them. A comparison of IQ scores of delinquents of high standard schools would have, at this point, helped us draw certain conclusions.

The facts that the two non-delinquent groups differed widely in their performance on the different scales of the WISC-R and that many of the boys in the non-delinquent (1) group (rated as non-delinquents by their class teachers) had delinquent characteristics, demonstrate that socio-economic status/standard of schools had something to do with delinquency. Standard of schools can affect children in either of the two ways. Is either that children who already have delinquent characteristics (lower intelligence, hostile, emotional unstability, low self concept etc.) go to these schools or that circumstances in the school make the otherwise normal child acquire delinquent characteristics. In high standard schools, apart from getting the opportunity to acquire more knowledge, children are compelled to maintain strict discipline. have tight schedules to follow and also have various recreational facilities. All these keep them away from abusing their time and talents. This is substantiated by the findings about the non-delinquent (2) group in the present study.

An interesting finding was that performance of the delinquents in the verbal scale of the WISC-R was significantly better ($p<.001$) than in the performance scale of the WISC-R. It was observed earlier that delinquents, in general, tend to show more ability for manual tasks and occupation, more ability to work with concrete material rather than with intellectual activities. This was not

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evident in the present study. Bijou and Jastak (1955) and others have, however, found that various intelligence test items, particularly of the non-verbal type, tend to be difficult for the emotionally unstable than for normal individuals. Alice Helm (1970) concludes that strong emotion is usually incompatible with clear logical thinking.Such evidences thus support the finding of the present investigation.

The fact that non-delinquents scored significantly higher on the verbal and performance scales led to a confirmation of the hypothesis that delinquents will also differ significantly from non-delinquents on the full scale IQ.

Self Concept and Juvenile Delinquency.

From what has been observed in this study we could conclude that self concept is an 'effect' as well as a 'cause' of delinquency. Lowered self concept is one of the causes of juvenile delinquency, but it is also an effect of unhealthy home conditions and negative experiences of the child.

Analysis of Case History data

Analysis of case history data revealed a number of significant variables related to delinquency. Variables found to have a highly significant relationship (P<.0011) with delinquency/non-delinquency included housing conditions, person punishing most, nature of punishment at home, opinion about father, opinion about mother, frequcncy of going to movies, type of movie liked most, respondent's source of money for movies, respondents friend's source of money for movies, respondents acquaintance with liquor houses, gambling centres, prostitution and dancing places, respondents visits to such aresas, truancy in respondents grade and boys having the habit of stealing in school.

Adjustment and Juvenile Delinquency

Home tensions as such are not necessarily maladjustive, but when they reach the point where they interfere with the students' goals and ambitions they put the adolescents' normal living at stake. In case of the present investigation delinquents were found to have a significantly lower level ($p<.001$) of home adjustment as compared with the non-delinquents. Delinquents and non-delinquents have also been found to differ significantly in their levels of health adjustment ($p<.001$), emotionality ($p<.05$) hostility/friendliness ($p<.001$) and masculinity/femininity ($p<.001$.)

Delinquents described as having an 'unsatisfactory' level of health adjustment were also found to have an 'unsatisfactory level of emotionality. But the non-delinquent (1) who were rated as having an average level of health adjustment were found to be emotionally 'unsatisfactory'. The non-delinquents (2) are more or less on the 'average level' which implies that they are emotionally stable. Emotionality thus, as the present study evinces, has something to do with delinquency/non-delinquency.

Delinquency/non-delinquency has also been found in this study to be linked with the attitude toward relationship with others. In the present inuestigation delinquents have been found to fall in the 'hostile' category while the non-deliquents (1) are in a 'somewhat critical' stage. In contrast, the non-delinquents (2) fall in the 'average' category.

Though the sample was small, some generalizations can be made from the present investigation. The findings indicate that standard of schools is a contributing factor in delinquency/non-delinquency. A school counsellor and

in fact the school as a whole has thus an important role to play in a prevention or treatment programme of delinquency. Parents. relatives and associates must learn to undrestand their delinquent wards and treat them affectionately. The parents have to create a proper home environment for their children a home that satisfies the needs and desires of a child, gives him a sense of security and freedom and an atmosphere of closeness and trust. The community has to take some more steps. What is provided at present seems to fall far short of the need. Delinquency may be an outcome of both heredity and environment. But there is little that can be done for checking the dffects of heredity. The community thus must take adequate measures to control the influences of the environment. An improved environment can help to foster positive behavior.

The present study is first of its kind in Bangladesh and as such the findings need replication. Certainly, more research in this area is needed in order to make conclusive statements. Future research in this area should include a larger sample. The findings of the present investigation would perhaps have been more noteworthy if a group of delinquents could be taken from high standard schools.

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A STUDY OF THE FACTORS RELATED TO THE INCIDENCE OF DOWN'S SYNDROME IN BANGLADESH*

Naushaba Khatoon

Normal parents can have children with physical or mental handicaps and in some cases the children can be mentally as well as physically handicapped. Down's Syndrome or mongolism is one such disorder and it accounts for 10 percent of mentally retarded children. It is also known as mongolism because persons suffering from this condition tend to have mongoloid features. According to Meadow and Smithells (1981) it occurs once in every 600 births, possibility of having a child with this condition rises after the mother is 35, but father's age is of no consequence.

Down's Syndrome can now be detected in early pregnancy by amniocentesis which involves taking a sample of amniotic fluid from the sac during early pregnancy. If diagnosis of chromosomal abnormalities is made at an early stage of pregnancy, appropriate measures such as abortion may by considered, or if parents have a negative attitude towards abortion they can at least be mentally prepared for having a handicapped child. As pointed out by Eden (1976) older women should seriously consider having an amniocentesis done because they have greater chances of having mongoloid offsprings.

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* This paper was presented at the Seventh International Congress of the International Association for the Scientific Study of Mental Deficiency (IASSMD) held in New delhi on 24-28 March 1985.

From *Dhaka University Studies* (Part A, 1985, Vol. 2,pp).121-124. *Reprinted by permission of the* author.

having mongoloid offsprings. A young mother,who has a mongol child has chances of having other such children, as young parents may well be the carriers of this disorder. This risk can be eliminated by chromosomal analysis.

Mongoloid babies are born to both older as well as young mothers and according to Catzel (1976) it is a form of mental retardation associated with 47 chromosomes due to nondisjunction resulting from the presence of an extra chromosome in pair 21, or with 46 chromosomes due to translocation of chromosome 15 and 21. It may however be pointed out that prevention is possible in the case of older mothers, but so far young mothers are concerned, they can seek medical help and genetic counselling only after the birth of a mongol baby.

Amniocentesis has proved to be an extremely effective tool which identifies chromosomal defects in the fetus. It is assumed that the risk rates for mother and fetus are also very low .

Table 1 which has been taken from Uchida (1975) shows the increasing incidence of Down's Syndrome cases with increase in maternal age.

Table 1
Incidence of the Down's Syndrome According to Maternal Age. Estimated from Five Surveys in England, Australia and Canada.

Maternal Age (years)	Incidence
<25	1/2000
25-29	1/1800
30-34	1/ 900
35-39	1/ 300
40-44	1/ 100
45 +	1/ 50

It is interesting to note the sharp rise from the 2nd to the 3rd age group and the continued high rate of occurrence with the increase in maternal age.

It is easy to recognise some of the clinical features which a Down's Syndrome individual possessses. They are visible in mental as well as physical abnormalities. Taft and Cohen (1972) have listed both abnormalities.

1. **Mental Retardition**
   a. Low. I. Q. 20-70
   b. child develops normally for the first two or three years, then slows down.
2. **Skeletal abnormalities** such as small head, small orbit and face. epicanthal folds, thick protruding tongue on account of small mandible, short neck, hip and pelvic abnormalities. small hands and feet, curved 5th finger, widely separated lst and 2nd toes and simian crease.

More serious clinical features are as follows: congenital heart disease, gastrointestinal abnormalities and leukaemia which occures three times more than in the general population.

Clinical diagnosis is not too complicated for an observant and experienced individual;, but should always be done by trained and competent individuals.

Methods and procedures

Data in Dhaka city were collected from the records available at the Institute of Post Graduate Medicine and Research (IPGMR). The Bangladesh Institute for the Mentally Retarded (BIMR). The Bangladesh Institute of Research and Rehabilitation in Diabetes. Endocrine and

Metabolic Disorders (BIRDEMD). The Shishu Bikash Clinic, Bangladesh Protibondhi Foundation (BPF) Kalyani, Bangladesh Protibondhi Foundation (BPF), Paschadpad Shishu Biddalaya. Rajshahi, the Child Guidance Clinic, Chittagong, WHO Intervention Programme. Dhamrai, Dhaka. The last three sources are outside Dhaka City.

The investigator visited all the sources personally, only the Rajshahi data was obtained by post after contacting experts who were in charge of the Pashchadpad Shishu Biddalaya at Rajshahi. The sample consisting of 32 mongols included infants, toddlers, school going as well as out of school children and an adult. The school going children at Dhaka city were enrolled at the Bangladesh Institute for the Mentally Retarded, Kalyani, Bangladesh Protibondhi Foundation. Willes Little Flower School, St. Placid's Tutorial, Guide House School and Mohammadpur preparatory School. Those at Rajshahi and Chittgong were enrolled at the Manasik Pashchadpad Shishu Biddalaya and the Child Guidance Clinic respectively. The out of school infants and toddlers were referred by the paediatricians to BIRDEMD, the Shishu Bikash Clinic and other such institutions. The sample also included two adolescents and one adult.

The mode of identification of Down's Syndrome was either by clinical diagosis or by chromosomal analysis. The clinical diagnosis was carried out at the Child Guidance Clinic at the Dhaka Medical College Hospital, the Shishu Hospital Dhaka and other such clinics by experienced doctors having training in mental retradation. The chromosomal analysis was done at the BIRDEMD. Dhaka or abroad.

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Data were also collected from the Bangladesh Bureau of Statistics regarding the fertility rate of Bangladeshi women at different age groups. As no finding was avilable regarding the specific age of mothers at the time of child birth, only age cohorts could be taken into consideration. Thus, the percentage of incidence of birth in the normal population has been calculated on the basis of the age group to which the women of Bangladesh happen to belong.

Percentage distribution of the observed population and that of the incidence of birth of children calculated from the available fertility rate have been compared with a view to finding out the relationship between the two distributions. In doing so the Chi square test has been used.

Families having monthly income above Taka 3000 were considered to be the upper middle class group, those having a monthly income of Taka 1000-3000 were considered to be middle class and those having a monthly income below Taka 1000 were considered to be the low income group. This was used as a rough measure of the economic status of the families.

Information was gathered on 32 cases of which fifteen were identified by clinical diagosis and seventeen by chromosonal analysis. The analysis was done either abroad or at BIRDEMD, Dhaka.

As observed by Khatoon (1983) absence of compulsory birth registration in Bangladesh is a problem which confronts the researchers in determining the exact age of the investigated sample. Objectivity and precision which are crucial factors in scientific enquiry are thus hampered by ambiguity. In determining the mother's age at the time of the child's birth the same difficulties were faced , But

since the general trend of womenfolk is to conceal their actual age by dropping two or three years, it was hoped that the mother were at least of the age which was obtained by the investigator.

Of the 32 cases studied 20 were females and 12 males. The age range of cases was from $4\frac{1}{2}$ months to 22 years. The age range of mothers was from 20 years to 53 years.

The sample included 28.12 percent parents who belonged to the upper middle class group, 62.50 percent who belonged to the midddle class group and 9.38 percent who were from the very low income group. It is evident that lack of basic education and consciousness regarding such matters makes the percentage of low income group parents in the sample scanty. Moreover, to such parents who cannot satisfy the basic wants of their normal offsprings, to cater to the wants of handicapped child may seem a luxury. However, it is encouraging that educated midddle class parents are coming forward to seek professional help, but the average middle class educated citizen in Bangladesh is still not conversant with the idea of developmental disabilities. More information has to be brought to his doorstep regarding such matters.

Since maternal age happens to be an accepted and recognized factor in the incidence of Down's Syndrome, an attempt was made to investigate this factor from a different angle. Fertility rate of Bangladeshi women based on age group was obtained from Bangladesh Bureau of Statistics (1983) and a percentage-wise comparison was made between the fertility rate of the normal population and that of the observed population.

The data in Table 2 shows the percentage wise distribution of birth in both groups.

Table 2 reveals some interesting facts. Age group 20-24 happens to be the highest fertility group for the normal as well as the observed population. The absence of births in age group 15-19 may be due to the small size of the observed sample, but younger mothers belonging to age groups 20-24 and 25-29 comprise 40.63 percent of cases having Down's syndrome offsprings.

Table 2

Percentage-wise Distribution of Births

Maternal Age Group	Incidence of Birth According to 1983 Statistics	Percentage Distribution of Observed Population
15-19	9.98	.00
20-24	29.30	25.00
25-29	18.77	15.63
30-34	21.18	15.63
35-39	14.71	18.75
40-44	4.83	21.87
45& above	1.21	3.12

The value of χ^2 computed from the above data is 76.86 which is significant at .001 level of significance, It reveals that distribution of observed population does not resemble that of normal distribution of birth of children as calculated from the fertility rate of the women of Bangladesh. Data indicate that with the increase of maternal age, percentage of child birth decreases and with the increase of maternal age percentage of Down's Syndrome birth increases. As revealed by the present findings, about 60 percent of mothers of mongol children

belong to age group 30-45 and above, whereas only about 42 percent of mothers of the general population belongs to this age group. It is said that the safest child bearing period is from 20-30 years and according to Carter (1981) the best way for preventing this disorder is for a women to stop bearing children when she is below thirtyfive years of age.

Table 3 presents data regarding the expected and observed birth of children of mothers of various age groups.

Table 3

Expected and Observed Frequentics of Birth (Percentage Distribution)

Age group	15-19	20-24	25-29	30-34	35-39	40-44	45 and above	Total
Expected frequencies	9.98	29.30	18.77	21.13	14.71	4.83	1.21	100
Observed frequencies	00.00	25.00	15.63	15.63	18.75	21.87	3.12	100

As mentioned earlier the ovserved value of χ^2 ($\chi^2 = 76.86$, $p<.001$ indicates that the nature of the expected population and that of the observed population are not alike. A look at the Table shows that whereas in the expected group there is evidance of a sharp decline of births for age groups 35 and above, conversely there is a rise of cases in the same age group of the observed population, this indicates that increase in mother's age increases the number of afflicted children.

Nature silently plays its role by decreasing the number of births as maternal age increases. It is therefore for man

to benefit from nature and scientific findings. This can be said for the older mothers, but so far mothers below the age of thirty are concerned. Science has to provide positive answers to safeguard their condition.

The sample included 22 children who were the youngest offsprings of their parents. They belonged to both younger as well as older mothers, Table 4 shows the number of siblings and the age of mothers who were below thirtyfive years when the child was born.

Table 4
Youngest Offsprings of Mothers Below Thirtyfive

Maternal age	Total number of siblings	Birth-order of child
23	2	Youngest
23	2	2
25	2	2
27	2	2
30	8	2
32	2	2
32	6	2
32	5	2
33	5	2
		Total 9

As indicated by the data 55 percent of the families are unusually small sized for Bangladesh, the average in this group is 3.7 . The reason may be that the shock of having an abnormal child in the family after a single normal birth may have been instrumental in discouraging parents from having more children. The mean age of mothers in this sample is 28.5 and according to Uchida (1975) such cases occur due to chromosomal translocations and the mean age of mothers is 28.

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The data presented in Table 5 shows the youngest offsprings of mothers who are thirtyfive and above and the total number of children in the family.

The data in Table 5 does not only indicate the detrimental effects of late child bearing , it also points towards the need for more effective measures for population control. It is seen that the average number of children in this group is 6.00 . According to Catzel (1976) "An infant with Down's Syndrome may be the first of an elderly couple or may be the last of a long line of pregnancies (an exhaustion product). This type is nearly always associated with a Trisomy 21."

Table 5

Youngest Offsprings of Mothers Thirtyfive and Above

Maternal Age	Total number of Siblings	Birth order of child
35	5	Youngest
35	3	"
35	2	"
37	8	"
38	3	"
38	9	"
40	2	"
40	2	"
41	8	"
41	11	"
42	3	"
42	4	"
53	8	"
	Total	13

Table 6 shows the remaining 10 cases of the sample observed, 3 happen to be only offsprings, 2 are firstborns, 3 are second children and 2 are third and fourth offsprings. The age range of mothers in this group was from 20-33 years. It must however be pointed out that though the data in the Table 4 and 5 show the birth order of the observed sample as the youngest off springs of their mothers there is every likelihood that other children might have been born to some of these mothers after the cases had been recorded at the clinics. Systematic follow up on these cases to see if these children still have the same birth order can lead to valuable findings.

Table 6
Children of Different Birth Order

No. of children	Position in family	Mother's age	No. on siblings
3	only offsprings	20,20,35	Nil
2	first-borns	28,21	3,2
3	2nd offsprings	29,23,27	3,4,4
1	3rd offspring	23	4
1	4th offspring	33	5

Conclusions and Recommendations

The objective of this study was to find out the relationship of Down's Syndrome to factors such as maternal age, sex of the child, economic condition of parents, number of siblings and birth order of the child, Work on mental retardation is of recent origin in Bangladesh, therefore there is paucity of recorded data, The sample was available after tracking down almost all known and reliable sources.

As indicated by the results, maternal age seems to be a factor linked with Down's Syndrome, but absence of compulsory birth registration creates difficulties for investigations. In this study it was assumed that since the general tendency of women is to reduce two or three years while recording their ages the age group 30-34 might infact be a little older than what appears on record. Had authentic date of birth been available there would be no occasion for subjective judgement and conjecture.

In the case of older mothers knowledge regarding the causes of mongolism can avert the incidence. Such parents can always benefit by amniocentesis and other available procedures, but it is the young mother who is yet to gain from scientific findings. Even a sample , as small as the present one has 40-64 cases belonging to age group 20-29, who, at the very outset of starting a family have been confronted with and emotional problem of great magnitude. While still discussing maternial age as a factor, Khatoon (1983) has shown concern regarding the increase of marriageable age of educated females in Bangladesh. Since more and more young women in the urban areas are entering colleges and universities and are later taking up jobs, teen age marriages in the urban areas are on the decrease. This has brought about an increase in the child bearing age of the educted females in Bangladesh. However small their number in relation to the general population be, these women should have the knowledge of facts which may have far reaching consequences in their lives.

More findings with larger samples are essential in a thickly populated country like Bangladesh and greater use fo mass media is recommended for the development of mass consciousness regarding these matters.

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ATTITUDE TOWARDS MENTAL RETARDATION IN BANGLADESH

Sultana S. Zaman, Sultana Banu, Parveen Huq and Q. S. M. Ilyas

Considering WHO estimate of 3% as the incidence of mental relardation among world-population, it could be estimated that 2.7 million people of Bangladesh were suffering from mental retardation in some form or the other. But no serious attempt has yet been made to identify these unfortunate individuals. Mental retardation is a new topic of study for the people of Bangladesh. Only recently a few professionals were taking interest in educating and rehabilitating these handicapped individuals. According to the current scientific and professional view regarding definition "Mental Retardation refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behaviour, and manifested during the developmental period" (AAMD, 1973, p.11). In general sense, mental retardation is understood to be retardation in development which occurs before age 18 and it affects the individual's abilities to cope with the complexities of everyday life.

A great deal has been reported and written about attitude towards mentally retarded at various time and places. In the Middle East, Hippocrates (460-377 B, C.),

From *Asian J, of Psychol and Educ*, 1987, Vol 19. No 2. pp 22-38
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seems to have been among the carliest to separate the rehabitation of disability from notions of magic and devil spirits (Mac Donald, 1981). Penrose (1972) notes the kindly attitude towards the mentally retarded persons in the writings of Confucius (6th Century B.C.) and Zoroaster. With the rise of Christianity certain religious groups began to apply the philosophy of the brotherhood of man, and fed those among them who were mentally handicapped. It was not until the seventeenth century that society began to organize institutions for them (Johnson 1951).

Shakespeare (1975) and Thomas (1978) have reviewed a number of studies on attitude towards the disabled in the U. S. A. They concur in a number of points. Generally speaking, physical handicaps were more easily accepted than mental, and handicaps in children aroused less negative reaction than those in adults. It was also found that attitudes improved as socio-economic conditions improved. While narrating the present position of disability in economically backward countries of the world, Miles (1983) observed that until basic needs like food and shelter of the people were fulfilled it was difficult for them to develop altruistic feeling or to understand other people's sufferings. Very few studies have been conducted on attitudes towards the disabled in developing countries. Studies on attitudes toward mental retardation in Pakistan reflect negative attitudes such as fear, ridicule, avoidance by the general public and disregard for the disabled person (Abdullah, 1981; Ahmed, 1981, and Miles, 1979a, 1981a). The reasons advocated for such negative attitudes were mainly religion or superstition. Similar

attitudes were also reported from various parts of Africa and Asia (WHO, 1982). Adhikari and Gudalefsky (1981) reports from Nepal that mentally retarded children and adults were neglected-in some villages people were sometimes hostile chasing them with dogs and throwing water on them; however, they further reported that in some cases the devine origin of disability was a matter requiring resignation and acceptance. It was also found in some studies (Serpell and N'gandu, 1918). that even where there was acceptance it might be merely a resigned and hopeless feeling or familiarity leading to neglect (Wal. 1927).

The situation, however, has been gradually changing. Because of concerted efforts of WHO, UNICEF, Government and non-governmental organizations (NGO) working, especially due to the impact of the "Internaltional Year of the Disabled" changes in attitude could be expected. In India "Indian Federation for the welfare of the Mentally Retarded" which has country-based community programme has move the parliament for a separate legislation to safeguard the rights of the mentally retarded (Pai, 1981). Similar steps have also been taken in Indonesia, Malaysia, Phillipines, Taiwan, South Korea and Thai land.

Mental Retardation, however, constitute a special problem in Bangladesh. Poverty, malnutrition, child mortality inadequate preventive and curative health services all influence the incidence and prevalence of mental retardation. Some steps have been taken by NGOS. especially a parent organization to make the public aware of the situation. Unfortunately, the policy makers were still

apathetic towards the problem. No studies have been done on attitudes towards the disabled in this country.

The purpose of the present study was to find out what people at present think, know, feel and believe about mental retardation. Information-collected through the present study would be helpful in developing programmes and services for the mentally retarded. Furthermore an epidemeological study on this problem could also be developed.

The general objective of the present study was to investigate whether ordinary members of the public, parents of mentally retarded and specialists differed in their attitude towards and knowledge regarding mental retardation. Further it was also investigated whether urban and rural population differed in the same attitudes.

In the light of the general objective the following specific variables regarding mental retardation were studied :

(i) Knowledge regarding definition of mental retardation,

(ii) Knowledge regarding causes of mental retardation,

(iii) Attitude towards religious and social rituals of mentally retarded,

(iv) Attitude towards rights and privileges of the mentally retarded,

(v) Knowledge regarding services and treatment of the mentally retarded, and

(vi) Knowledge regarding legal rights of the mentally retarded.

Method

Subject

Three categories of subjects were included in the present study : general public, specialists and parents mentally retarded (MR). A total of 60 of subjects represented the pilot study taking 20 from each category. The main study included 240 subjects taking 80 from each category of general public, specialists and parents of mentally retarded. The subjects were selected by stratified random sampling. Of the 80 subjects from general public 40 were from urban area and another 40 from rural area. And of the 80 subjects from the parents of M. R. 48 were from the urban area while 32 were from the rural area. All the 80 specialists were from the urban area. The urban subjects of the general public were drawn randomly from two densely populated areas of Dhaka City--Hatkhola Road and High court area, while the rural subjects were drawn randomly from villages of Baghabari, Nolam and Khejutta of Savar Upazilla. The specialists were selected from Dhaka Shishu Hospital, Dhaka Medical College Hospital, Model Clinic of Mohammadpur, Departments of Social Welfare, Psychology, and Education of Dhaka University, special education schools, primary and secondary schools of Dhaka city. The parents of mentally retarded in urban area came from various areas of Dhaka city, especially were the parents whose children were attending a special school "Kalyani". All the parents of M.R from the rural area were selected from different villages of Dhamrai Upazilla,

especially were the parents whose children were attending a special school. Tables 1, 2 and 3 give the description of the subjects regarding age, sex. education and socio-economic status (SES) of the three categories of subjects.

Table 1

Age, sex, education and socio-economic status of subjects from general public in urban and rural area.

Total number=80

		Urban (N=40)		Rural (N=40)	
		Male	Female	Male	Female
Age	Below - 20	3	0	0	4
	21-30	6	2	0	12
	31-40	6	6	5	7
	41 and above	2	5	5	7
Education	Illiterate	0	1	6	26
	Primary	1	0	2	1
	S.S.C. & H.S.C	5	4	2	3
	Graduate & above	11	8	0	0
SES	Lower SES	3	1	6	30
	Middle SES	15	10	2	2
	Middle Higher SES	7	3	0	0
	Higher SES	1	0	0	0

Table 2

Distribution of subjects according to the area of specialization of the Specialists.

		DIFFERENT SPECIALIZATION									
		General Physician	Gyneacologist	Paediatrician	Psychiatrist	Psychologist	Educationist	Teacher of secondary School	Teacher Primiry School	Teacher of Special Edun	Social Worker
SEX	Male	9	0	3	2	3	3	7	6	0	4
	Female	1	5	5	3	5	3	5	5	5	6
	Total	10	5	8	5	8	6	12	11	5	10

Grand Total : 80

Table 3

Age of mother at birth of handicapped child, education and socio-economic status of urban and rural parents of mentally handicapped children

		Urban (N=48)	Rural (N=32)
Age at birth	15-25	23	23
	26-35	20	7
	36-45	5	2
	45 and above	0	0
Education	Illiterate	0	22
	Primary	8	9
	Secondryand Higher Secondary	28	1
	Graduate and above	12	0
SES	Lower SES	10	28
	Middle SES	23	4
	Middle-Higher SES	15	0
	HIGHER ses	0	0

Measures Used

A pilot study was conducted to develop the questionnaires for identifying different attitude towards mental retardation. Initially two separate open-ended questionnaires were constructed : one for the general public and specialists, and another for the parents of mentally retarded. The questionnaires included items on subjects' attitude and knowledge about definition, causes, rights and previleges, religious and social rituals, care

and treatment facilities and legal rights of the mentally retarded. The responses obtained by the pilot study were analyzed and, in some cases were classified into various categories, such as, scientific, semi-scientific, unscientific and grossly superstitous. Based on these responses two sem-structured questionnaires were developed on the same topics for the main study. Questionnaire for the parents of M. R. had 22 items while the questionnaire for the general public and the specialist had 17 items each devided into 6 sections. The items in each section measured the six variables mentioned earlier in the objectives. Personal Data Blank was also used for obtaining demographic data of the subjects.

Procedure

Four interviewers who had M. Sc. degree in Psychology were trained regarding mental retardation and each aspects of the questionnaires and how to administer these. Both the questionnaires were administered on the subjects from the general public and the parents of mentally retarded in interview sessions. Only the specialists filled in the qustionnaire themselves. The interviewers visited the subjects in their homes to administer the questionnaires for the general public and the parents of the mentally retarded in the urban as well as the rural areas. The specialists, however, were contacted in the Hospitals, Universities and Schools, and were requested to fill in the personal data blank and the questionnaire. All the subjects co-operated. Wherever the questions seemed to be difficult for the subjects to

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understand it was explained by the interviewers. seemed to be difficult for the subjects to understand it was explained by the iterviewers. The data were collected for a period of one year stating from middle of 1983.

Results

Data collected by administering both the questionnaires were classified and statistically analyzed. The following tables give the results of the analysis. Table 4 gives the distribution of responses by the specialists, general public and parents of M. R. regarding defintion of mental retardation as scientific, semiscientific, unscientific, grossly superstitious or not stated. The x^2 computed revealed significant difference among the three groups of subjects and their responsess at $p<.001$ level. Table 5 and Table 6 give the distribution of responses by the urban and rural parents of M. R. and urban and rural general public respectively regarding the same item i. e. definition of mental retardation. Urban and rural parents did not differ significantly but there was a significant difference at $p<.001$ level among the rural and urban general public regarding definition. Table 7 give the x^2 computed between the three groups : specialists, general public and parents of M.R. regarding beliefs about pregnancy, delivery and post-natal period as possible causes of mental retardation. All the three x^2 were significant at $p<.001$ level. Table 8 gives the distribution of general public, parents of M. R. and specialists according to their views regarding possible causes of mental retardation -- the responses

were, howerver, not mutually exclusive. Table 9 give the distribution of responses of specialists, general public and parents of M. R. regarding participation of mentally retarded in social and religious rituals. x^2 computed revealed significant difference at $p<.001$ level among the three groups of subjects. Table 10 give the distribution of responses of parents of M. R. (rural and urban) regarding reasons for including their retarded children in social events. Table 11gives the distribution of responses of parents of M. R. (rural and urban) regarding their views about 'Right to Inheritence' of the mentally retarded. Table 12 gives the distribution of responses of specialists and general public regarding their views about Right to Education' of the mentally retarded. x^2 computed revealed significant differences at $p<.001$ level. Table 13 gives the distribution of responses of general public, parents of M. R. and specialists regarding their knowledge about different types of professionals required for the treatment of mentally retarded. The responses were not mutually exclusive. Table 14 gives the distribution of responses of specialists, general public and parents of M. R. regarding their views about persons and institutions responsible for taking care of the mentally retarded. The responses were not mutualluy exlusive. And finally table 15 gives the distribution of responses of specialists, general public and parents of M.R. regarding their awareness about existing laws of the country for mentally retarded. x^2 computed revealed significant difference at $p<.001$ level among the three groups of subjects.

Table-4

Distribution of SS accroding to categroies of respondents and Scientific status of responses regarding defintion of Mental Retardation.

		NATURE OF RESPONSES					
		Scien-tific	Semi Scien-tific	Uns-cien-tific	Grossly Supers-titious	Not Sta-ted	Row Total
CATEGORIES OF RESPONDENTS	Specialists	56 70 46.28	15 18.75 27.77	7 8.75 21.21	2 2.5 22.22	0 0 0	80
	Members of General Public	30 37.5 24.79	11 13.75 20.37	13 16.25 39.39	6 7.5 66.66	20 25 86.95	80
	Parents of Mentally Retarded	35 43.75 28.92	28 35 51.85	13 16.25 39.39	1 1.25 11.11	3 3.75 13.04	80
	Col. Total	121	54	33	9	23	240

Chi-Square between categories of respondents and scientific status of responses $Chi^2=52.40$, significant at $P<.001$ with df=8).

First figure in the cell indicate frequency.

Second figure in the cell indicate row percentage.

Third figure in the cell indicate colum percentage.

Table 5

Distribution of rural and urban parents of M.R. according to scientific status of resopnses regarding definition Mental Retardation.

		NATURE OF RESPONSES					
		Scien-tific	Semi Scien-tific	Uns-cien-tific	Grossly Supers-titious	Not Sta-ted	Row Total
LOCATION	Urban	21 (43.75) (60)	18 (37.5) (64.28)	8 (16.66) (61.53)	1 (2.08) (61.53)	0 (0) (0)	48
	Rural	14 (43.75) (40.00)	10 (31.25) (35.71)	5 (15.63) (38.40)	0 (0) (0)	3 (91.37) (100)	32
	Col. Total	35	28	13	1	3	80

Chi-square between categories of responses and scientific status of responses Chi^2=3.307, not significant).

1st figure in the cell indicate frequency.

2nd figure in the cell indicate row percentage.

3rd figure in the cell indicate colum percentagee.

Table 6

Distribution of Rural and Urban general public according to categories of response and scientific status of response regarding definition of mental Retardation.

		NATURE OF RESPONSE					
		Scien-tific	Semi Scien-tific	Uns-cien-tific	Grossly Supers-titious	Not Sta-ted	Row Total
LOCATION	Rural	7 (17.5) (76.33)	4 (10) (36.36)	6 (15) (46.15)	5 (12.5) (83.33)	18 (45) (90)	40
	Urban	23 (57.5) (76.66)	7 (17.5) (63.63)	7 (17.5) (53.84)	1 (2.5) (16.66)	2 (5) (10)	40
	Col. Total	30	11	13	6	20	80

Chi-square between categories of response and scientific status of response (χ^2=22.228, significant at P<.001 with df=5)

1st figure in the cell indicate frequency.

2nd figure in the cell indicate row percentage,

3rd figure in the cell indicate colum percentage,

Table 7

Chi^2 between nature of responses and categories of respondentsregarding belief about possible cause of Mental Retardation.

Chi^2 between nature of responses and categoris of respondent	Value of x^2 (Urban-rural combined)
Chi^2 between nature of responses and categories of respondent regarding pregnancy as a possible cause of M. R.	38.75*
Chi^2 between nature of response and categories of respondent regarding delivery as a possible cause of M. R.	43.97*
Chi^2 between nature of responses and categories of respondent regarding post-natal condition as a possible cause of M. R.	23.66*

*Chi^2 is significant at P<.001 with df=4

N. B.: Categories of respondents were specialists, general public and parents of M. R.

Response categories were : 'Yes' 'No', Not Stated'

Table 8

Distribution of respondents according to their views regarding possible cause of mental retardation.

Couses of Mental Reterdation	CATEGORIES OF RESPONDENT AND THEIR LOCATION				
	General Public N-80		Parents of Mentally Retarded N-80		Specialists N-80
	Urban N-40	Rural N-40	Urban N-48	Rura N-32	Urban
1. Harmful drug during pregnancy	22 (55)	3 (7.5)	24 (50)	2 (6.25)	64 (80)
2. Abnormal development	21 (52.5)	1 (2.5)	30 (62.5)	4 (12.5)	62 (77.5)
3. Abnormeal birth	14 (35)	1 (2.5)	24 (50)	3 (9.38)	54 (67.5)
4. Heredity	9 (22.5)	3 (7.5)	8 (16.67)	3 (9.38)	53 (66.25)
5 Malnutrition	15 (37.5)	2 (5)	3 (6.25)	8 (25)	40 (50)
6. Consanguinity	5 (12.5)	1 (2.5)	5 (10.42)	4 (12.5)	35 (43.75)
7. Poverty	8 (20)	1 (2.5)	3 (6.25)	3 (9.38)	16 (20)
8. Illitracy	10 (25)	1 (2.5)	2 (4.17)	0	12 (15)
9. Curse from God	3 (7.5)	34 (85)	1 (2.08)	10 (31.25)	2 (2.5)
10. Sins of Ancestors	0	4 (10)	0	3 (9.38)	0

Number within parentheses indicate percentage

N.B. : Percentage would not add upto 100 as respones were not mutually exclusive.

Table 9

Distribution of Ss according to categories of respondents and nature of responses regarding Performance of Social and religious rituals for M. R children.

CATEGORIES OF RESPONDENTS	NATURE OF RESPONSES			
	Yes	No	Not stated	Row Total
Specialist	80	0	0	
	(100)	(0)	(0)	80
	(39.80)	(0)	(0)	
General Public	71	4	5	
	(88.75)	(5)	(6.25)	80
	(35.32)	(16.67)	(33.33)	
Parents of M.R.	50	20	10	
	(62.5)	(25)	(12.5)	80
	(24.88)	(83.33)	(66.67)	
Col Total :	201	24	15	240

Chi-square between categories of respondents and nature of responses on performance of Social and relegious rituals of M.R. Chi2=45.27 significant at P <.001 with df = 4)

1st figure in the cell indicate frequency, 2nd figure in the cell indicate row percentage 3rd figure in the cell indicate colum percentage.

Table 10

Distribution of parents according to their veiws regarding reasons for inclusion of the M.R. child in social events.

Reasons	Parents of MR and their Location	
	Urban (N=48)	Rural (N=32)
1. Participation in social gatherings provide learning opportunities for the mentally handicapped.	4 (8.33)	3 (9.38)
2. Cannot leave the child alone	4 (8.33)	4 (12.50)
3. Does not create problem for others in a social gathering	5 (10.42)	1 (3.12)
4. Loves to go out anywhere and enjoys	5 (10.42)	0
5. Not stated	27 (56.25)	24 (75)

Number within parenthesis indicate percentage.

Table 11

Distribution of parents of M.R. according to their veiws regarding "Right to Inheritance of M.R. like their normal children.

		PARENT OF M.R. AND THEIR LOCATION	
	Reasons	Urban (N=48)	Rural (N=32)
1.	They are entitled to equal inheritance rights justs as other children of the family.	6 (12.50)	5 (15.63)
2.	In case they are not able to work in later life, they can get their livielihood from their inherited properties.	22 (45.83)	9 (28.13)
3.	Not stated	20 (41-67)	18 (56.25)

Number in the parenthesis indicate percentage.

Table 12

Distribution of responses of general public and specialists according to their views on" right to education" of parents of M.R.

CATEGORIES OF RESPONDENTS	NATURE OF RESPONSES (Rights to education)				
		Yes	No	Not Stated	Row Total
	Specialist	78	2	0	80
		(97.5)	(2.5)	(0)	(59.54)
		(10)	(0)		
	General	53	18	9	80
	Public	(66.25)	(22.5)	(11.25)	
	(40.46)	(90)	(100)		
	Col. Total	131	20	9	160

Chi-square between categories of respondents and their responsees on "right to education" of M.R. Child (Chi^2= 26.57) significant at P<.001 with df=2)

First figure in the cell indicate frequency

Second figure in the cell indicate row percentage

Third figure in the cell indicate colum percentage

Table 13

Distribution of respondents according to their knowledge regarding different Type of professionals required for the treatment of M.R.

Types of Professionals	Categories of Respondents and their location				
	General Public		Parents of Mentally Retarded		Specialists
	N=80		N=48		N=80
	Urban N=40	Rural N=4	Urban N=48	Rural N=32	Urban
1. Psychiatrists	23(57.5)	1(2.5)	16(33.33	4(12. 5)	63.(78.75)
2. Psychologists	20(50)	0 0	29.(60.42)	5.(15.63)	58(72.5)
3. Child Specialists	28(70)	4(10)	7(35.42)	7(21.88)	49(61.25)
4. Doctors	14(35)	9 (12.5)	14(29.17)	15(46.88)	30(37.5
5. Homeopaths	4(10)	2(5)	1(2.08)	1(3.13)	30(37.5)
6. Priests	5(12.5)	6(15)	1(2.08)	1(3.13)	5(6.25)
7. Kaviraj Hekim	3(7.5)	5(12.5)	00	1(3.13)	4(5)
8. Do not know	6 (15)	24 (60)	4(12.	8(10)	

N.B. Number within parenthesis indicate percentagc.

Percentages would not add up to 100 as the responses were not mutually exclusive.

Table 14

Distribution of respondcnts according to their views regarding the persons or indtitutions taking care of the M.R. Children.

Persons & Institutions Taking Care of MR	Categories of Respondents & their Location: General Public Urban N=40	General Public Rural N=40	Parents of M.R Urban N=48	Parents of M.R Rural N=32	Specialists N=80
1. Mother, father	35(87.5)	36(90)	48(100)	31(96.88)	77(96.25)
2. Members of the family	(2972.5)	12(30)	26(54.17)	6(18.75)	62(77.5)
3. Doctors	16(40)	4(10)	10(20.83)	5(15.63)	61,76.25
4. Teachers	13(32.5)	13 (32.5)	3(6.25)	1(3.13)	60(75)
5. Society	21(525)	14(35)	1(2.08)	2(6.25)	57(71.25)
6. Government	18.(45)	12(30)	1(2.08)	3(9.38)	55(68.75)
7. Relatives	12(30)	9(22.5)	11(22.92)	5(15.63)	31(38.75)
8. God	1(5)	1(2.5)	00	1(3.12)	6(7.5)
9. Nobody	0 0	00	00	00	00
10. Do not know	00	(4 10)	00	00	00

N. B. Number wothin parentheses indicate percentage

Percentages would not and up to 100 as the responses were not mutuallu exclusive

Table 15

Distributin of SS according to their awareness regarding existing laws of the country for MR children.

Categories of Respondents	NATURE OF RESPONSES			
	Yes	No	Not stated	Row Total
Specialists	6	40	34	80
	(7.5)	(50)	(42.5)	
	(18.75)	(43.01)	(29.57)	
General	26	8	46	80
Public	(32.5)	(10)	(57.5)	
	(81.25)	(8.60)	(40)	
Parents	0	45	35	80
of M.R.	(0)	(56.25)	(43.75)	
	(0)	(48.39)	(30.43).	
Col. Total:	32	93	115	240

Chi-Square between categories of respondents and their responses (χ^2=46.02 significant P<.001 with df=4)

1st figure in the cell indicate frequency, 2nd figure in the cell indicate row percentage 3rd figure in the cell indicate colum percentage

Discussion

The results of the peresent study indicated significant differences in attitude towars and knowledge about mental retardation among general public, specialists and parents of mentally retarded regarding definition, possible causes, rights and previleges, religious and social rituals, services and treatment, and legal rights of the mentally retarded. The specialist group was found to be the most scientific in their ideas, were most aware and had positive attitude towards the problems of mental retardation as compared to general public and parents of M.R. However when the

perents of M.R. were compared to the general public the parent group was found to be more scientific and aware of the problem of mental retardation than the general public.

(i) *Definition :* In response to the structured question on definition of mental retardation, compution of x^2 revealed a significant difference in responses of the the three group of subject at $p<.001$ level (Table-4). The result indicated 70% of the specialists, 37.5% of the general public and 43.75% of the parents gave a scientific answer. 2.5% of the specialists, 7.5% of the general public and 1.25% of the parents of M.R. gave a response which was grossly superstitious -- indicating more awareness on the part of the parents (Table-4). Majority of the parents of M. R. in the present study had their children enrolled in the special education school which might have influenced their attitude When the responses of rural and urban parents of M.R. were compared there was no significant difference, although the urban parents gave more scientific responses (Table-5). There was, however, a significant difference at $p<.001$ level when the responses of rural and urban general public were compared the urban subjects were much more scientific in their responses (Table-6). Another important observation was that 12.5% of rural population gave grossly superstitious answers while 45% did not respond at all. If we look into the educational and socio-economic level of the general public from rural area--they were mostly illiterates or less educated and poor. And therefore, such responses would be exepected.

(ii) *Causes :* In responce to questions on pregnancy, delivery and post-natal period as possible causes of mental retardation Chi^2 computations revealed significant difference among the three groups and their responses at $p<.001$ level (Table-7). The specialist group

had the highest frequency of responses supporting that pregnancy, delivery and post-natal period could be possible causes of mental retardation. Responses to another structured question regarding what were the possible causes of mental retardation, the three groups of subjects differed among them--selves (Table-8). There were 10 possible answers and the subjects could give multiple answers. Interesting to note was 85% of the rural general public responded as 'Curse from God' and 10% as 'sins of ancestors' as possible cause of M. R. 31% rural parents also responded 'curse from God' and 9% as 'sins of ancestors' as possible causes of M.R. On the other hand, urban general public and urban parents were more scientific in their responses (Table-8). This indicated that people in rural areas have less knowledge about mental retardation.

(iii) *Participation in social and Religious and rights and privileges :* Responses to questions on whether a mentally handicapped child should be allowed to participate in various social and religious ceremonies such as *akika* (christening), *Khatna* (circumsition), birth day, *upanayan*, *annaprashan* etc. the three groups of subjects differed significantly at P<.001 level. 100% specialist, 88.75% general public and 62.5% parents of M. R. supported the participation of M. R. in all the ceremonies (Table-9). When the parents were asked the reason for inclusion of their M.R child in social events (open ended question), they gave different reasons (Table-10), although a high percentage of parents did not respond. When the parents were asked whether they would make their mentally retarded child have equal "right to inheritence" as their normal children (open ended) most of the parents responded in the

affirmative giving reasons while 20 urban and 18 rural parents made no responses (Table-11). Chi^2 revealed a significant difference at $p<.001$ level between responses made by specialist and general public to the question on whether a mentally retarded child has the "right to education". 97% specialists and 66% general public supported the issue (Table-12).

(iv) *Treatment and Care :* Responses to question to the three groups of subjects regarding their views as to who were the specialists required for the treatment of the mentally retarded (structured question), the subjects differed among themselves. Highest percentage among specialists (78%) thought the psychiatrist had the responsibility of treatment of M.R., highest percentage among the parents (rural and urban-75%) gave this responsibility to the psychologist, while highest percentage among the general public (rural and urban-80%) said the child specialist (Paediatrician) were responsible for the care and treatment of M.R. (Table 13). Responses, however, were not mutually exclusive as multiple answers could be given. Responses, to the questions as to the persons and institutions who should take care of the mentally retarded (structure question), almost all the three groups of subjects gave this responsibility to the parents. Specialist gave (77%) this responsibility also to the doctors, teachers and the Government (Table 14).

(v) *Legal Aspect :* There was a significant difference in Chi^2 at $P<.001$ level in the responses of the three groups of subjects regarding their knowledge about any existing laws of the country for the mentally retarded (Table-15).

100% parents had negative response, very few specialists (7%) and 32% general public responsed as having knowledge regarding laws for the mentally retarded. A large percentage, however, did not resopnd at all. From the results obtained in the parent study it could be commented that although significant differences existed among specialists, general public and parents of mentally retarded regarding their attitude and knowledge about mental retardation, it was encouraging to note that parents of M.R. and the general public were also highly aware of various problems of mental retardation. Awareness might not be as high as the specialists, but the parents and general public had considerable knowledge about mental retardation. It was exspecially encouraging to learn that parents of M. R., even in the rural area, to some extent, were awere of the problem. The present study although with a small sample gives a different picture of attitude towards mental retardation and compared to the negative attitudes which existed in Nepal, Pakistan and some countries. Africa as revealed through various studies (Adhikari & Gudalefsky, 1981, Serpell and Nagda 1981 Miles, 1981).

The positive attitude of the specialists, and the parents of mentally retarded as revealed by the present study could be the result of the NGO's working for last 7/8 years in the area, holding conferences and seminars for awareness compaign regarding mental retardation. Some ground has been prepared-work and services need to be developed.

Finally it could be said that the smple of subjects for the present study was rather small and before launching an extensive programme more studies especially an

epidemeological study on mental retardation neeed to be conducted.

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PARENTAL LOSS AND PSYCHOPATHOLOGY AMONG YOUNG ADULTS

Parveen Huq and Roquia Begum

Parents play a significant role in the healthy personality development of a child. Sears, Maccoby and Levin (1957) have maintained that parental warmth is the most crucial and pervasive factor affecting the mental health of the child. Thus any distrubance either in the form of separation of death of parent even in the early years of life has far-reaching implications for the child. As a result of the incidence of parental loss by death during childhood and adolescence., the potential psychological effects that accrue from such loss are of substantial clinical, social and research importance. Numerous studies have linked parent loss with several forms of psychopathology. Caplan and Douglas (1969) have reported depression, psychopathic personality, schizophrenia, hysterical personality and unspecified psychoneurosis following the death of parent. A number of studies have shown that parental death have produced a variety of clinical disorders and psychological symptoms. Schizophrenia, psychological conflict in adolescent females, guilt and loss of self- esteem, and depression have been reported by Wahl, (1956). Grayson (1967), Samrad (1967), and Dizmang, (1969). Also, illegal offenses (Markussen and Fulton, 1971) and medical illness (Dietrich, 1981) have been linked with early parent death.

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Biller (1970) has pointed to a variety of detrimental effects involving self-control, cognitive functioning, interpersonal relationship, playing the male sex role and the higher incidence of later pathology following the death of parents. Bandura and Walters (1959) maintained that the failure to satisfy the child's needs for dependency in early years contributed significantly to the development of aggressive behavior in the adolescent.

Studies have also shown that the age of the child at the time of parental death has differential effects on the child's personality. Loss of a parent during the early critical period of socialization is likely to be more detrimental than the same loss at a later age. Hetherington (1966), Biller and Bahm (1971) have demonstrated that parental loss at the age between five to six appears to be the critical one, having the most adverse effects on the child.

Sex of the child was also found to be an important factor in producing psychological symptoms in children (Berlinsky and Biller, 1982). Dietrich (1979) found parental loss and emotional disturbance varied with the sex of the child. Loss of a parent is likely to be more serious for a son than for a daughter. Wahl (1956) found that 41% of 568 male schizophrenics have lost a parent through death, divorce or separation before they had reached the age of 15, and 18% had lost both parents before that age.

Review of the literature on parental death have shown that age and sex of the child are important for producing psychological symptoms among children and adolescents. In Bangladesh, little or no study has been done on this problem. So, the present study attempts to investigate the psychological health of young boys and girls who experienced the death of a parent during early childhood and early adolescence.

Method

Subjects

The young adults who participated in the present study were 60 (30 male and 30 females) in all. Their ages ranged from 19 to 24 years and they were from different socioeconmic status and were students of different Colleges and the University of Dhaka. For any subject to be included in the present study (except for no loss group) parental death must have occurred at least one year prior to paticipation in the study. Subjects comprised three groups, early loss, late loss and no loss. Early loss group consisted of individuals who experienced the death of a parent or parents prior to 6th year. The late loss group consisted of those who lost their parent or parents between the ages of 12 to 18 years, and those who had never experienced the death of a parent comprised the no loss group. Each group consisted of 10 males and 10females.

Questionnaires

A standardized Bangladesh version of the Eysenck Personality Questionnaire 'EPQ' (Rahman and Eysenck, 1981) was employed to measure trends of neuroticism. psychoticism and extraversion. The questionnaire consists of 115 items in all. The reliabilities were all >0.70, so that the scale could be used in confidence on Bangladeshi population.

The EPQ was administered to the subjects in small groups in the standard manner by the researchers in a prearranged room. The subjects were asked to follow the instructions printed on the front page of the questionnaire. They were also asked to fill up a short biodata sheet attached with the questionnaire.

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Results and Discussion

The results of the present study are presented in the following tables :

Table 1

Means for the three groups on EPQ scale.

Scales	Early loss		Late loss		No loss	
	M	F	M	F	M	F
Neuroticism,	11.8	11.0	9.7	10.1	8.1	8.9
Psychoticism	2.5	2.2	3.0	1.7	2.0	1.8
Extraversion	9.9	9.3	10.9	9.1	10.3	9.8

In order to see whether age at the time of parental death and sex has any relation with psychopathology, the obtained scores on EPQ scales were analyzed by Analysis of Variance.

Table 2

Effect of parental loss by age and sex on Neuroticism Scale.

SV	df	SS	MS	F
Total	59	659.73		
A (age at the time of loss)	2	84.13	42.07	3.99*
B (Sex)	1	.26	.26	0.024
AB	2	6.94	3.47	0.33
Error	54	568.4	10.53	

* P<.01

Analysis of Variance of Neuroticism Scores (Table 2) shows that the main effect of age at the time of loss is significant at.01 (F=3.99; df=1.54) level of significance. That is neuroticism scores varied significantly according to the length of the parental loss. However, the main effects of sex and interaction effect were not significant.

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Table 3

Effect of parental loss by age and sex on Psychoticism Scale.

SV	df	SS	MS	F
Total	59	53.6		
A (age at the time of loss)	2	2.7	1.35	1.75
B(Sex)	1	5.4	5.4	7.01*
AB	2	3.7	1.85	2.40
Error	54	41.8	.77	

* P<.05

The results of the Analysis of Variance of Psychoticism score, presented in Table 3, show that main effect of length of loss was not significant. But the main effect of sex was significant at .05 (F = 7.01; df= 2.54) i. e. Psychoticism varies significantly according to sex of respondents. However, interaction effect of length of loss and sex was not significant.

Table 4

Effect of parental loss by age and sex on Extraversion Scale.

SV	df	SS	MS	F
Total	59	292.19		
A (age at the time of loss)	2	2.44	1.22	0.24
B(Sex)	1	14.02	14.02	2.79
AB	2	5.23	2.62	0.52
Error	54	270.5	5.009	

Analysis of Variance of Extraversion Scores presented in Table 4, show that the main effects of neither age and sex, nor interaction effect are significant.

Discussion

The major purpose of this study was to observe whether age at the time of parental death and sex of the child had any effect on the psychological health of young boys and girls. The results of the study, however, revealed that age at the time of parental death was associated with psychopathology as measured by the EPQ in case of Neuroticism. From the results it appears that early loss is more detrimental then later loss or no loss of parents. Research findings have shown that early reationships with the parents set the pattern for all future involvements. Thus, any distrubance even in the early months of life has far reaching implications for the child's development of personality. As a result of a loss of parent during the early ages, the child tends to become anxious, immature, lowered self-confidence, show poor frustration tolerance and have difficulty in coping with the problems of life. However, the pesent study did not show any significant effect of parental loss on psychoticism and extraversion. Thus, this result contradicts the findings of Barry (1949), Blum and Rosenwing (1944), Caplan and Douglas(1979); Wahl (1956) who found that early experience of parent death is associated with later diagnostic categories that pertain to psychoticism.

However, significant effects of sex on later pathological functioning or impaired psychological health was found in the present study. It appears that parent-death experience exerts the greatest effect on males with regard to later psychopathological measures. This finding is consistent with some earlier finding (Dietrich, 1984). It appears from the results that psychotism scores for boys were higher for all groups though the greatest effect was found for late loss group. This may be explained by the fact that parental death during adolescent period for girls does

not affect much because girls at this time may occupy herself with household activities such as helping parents, looking after younger brothers and sisters etc.

It is interesting to note that the males scored higher on all scales in all the groups, except Neuroticism, where females scored higher in all the three groups. Similarly males in the control group were also higher than control females on all scales except neuroticism. Girls in our society are found to be more dependent on parents than boys. Boys from their very childhood are encouraged to take initiative and take decisions on all important matters, whereas girls are found to play a passive role. For this reason, when a parent death occurs during early years of life, a girl becomes more helpless and anxious which may subsequently be responsible for developing neurotic symptoms in later life.

Though no significant difference in age and sex was found among the the three groups in the Extraversion scale, mean scores for the boys were higher than those of girls in all the three groups. Sex role in our culture may be responsible for this difference.

It may be concluded from the present study that parental loss and sex did not have similar effect on all the groups of subjects. According to Anderson (1948) in order to have traumatic consequences an event had to be repeated and reiterated in the child's experience. In the present study it was not very easy to control a child's subsequent experiences so that long-term impact of single traumatic event can be tested. The present study also suggests that there may be various types of adaptive and coping mechanisms that may allow early bereaved persons the opportunity and occasion for adequate mastery of such a potentially traumatic experience. In the

present study certain other variables such as number of family members, quality of home atmosphere, nature of parent-child relationship prior to death, individual characteristics of the child etc. were not taken into account. So definite conclusive statement is difficult to draw. It is found that in father absent homes boys with a brother are less affected than boys without a male sibling (Sutton Smith, Rosenberg and Landy. 1968; Santrock, 1970). Similarly, in mother absent homes, girls with sisters are less affected. So no single aspect of home, such as, parental death can be considered apart from many other variables.

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VI
Studies on Industrial and Educational Psychology

1. **Hamida Akhtar Begum and Md. Nurul Anwar** : Consideration and Structure Dimensions of Leadership Behaviour and Supervisory Effectiveness as Determined by Managers' Ratings and Group Productivity.

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6 Mohtab Khanam : The Relationship Between Creativity, Self-concept and Academic Achievement Among Secondary School Students.

CONSIDERATION AND STRUCTURE DIMENSIONS OF LEADERSHIP BEHAVIOUR AND SUPERVISORY EFFECTIVENESS' AS DETERMINED BY MANAGERS RATINGS AND GROUP PRODUCTIVITY

· **Hamida Akhtar Begum and Md. Nurul Anwar**

A review of the literature on leadership reveals that during the past few years there has been an increasing emphasis on studying leadership in terms of activities which influence others. This behavioural approach is in sharp contrast with earlier trait approach in which leadership was thought to be a personality trait that some people had or others did not. The importance of studying leadership from behavioural point of view was most probably first realized from the findings of the famous Hawthorne studies (Roethlisberger & Dickson 1939) which revealed the importance of human relations in determining productivity in industrial plants. Subsequently, industrial social psychologists became increasingly active in studying leadership from the behavioural point of view and attempted to assess the relationship between various patterns of leadership, and their effectiveness as determined by group productivity, morale, employee attitudes, absenteeism, turnover, grievances and such others.

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1. *From Asian Journal of Psychology and Education*, 1978, Vol. 3, No. 2, PP-40-45. *Reprinted by permission of the authors.*

A series of investigations conducted in the Institute of Social Research of the University of Michigan showed that supervisors of high producing units were more often 'employee centered' while supervisors of low producing units were more often 'job-centered' (Katz and Kahn, 1951, 1262; Katz, Macooby and Morse, 1950; Likert and Willits, 1940; Kahn 1956; Bose, 1957). By 'employee centered supervisor' the investigators meant that the supervisor placed the primary emphasis on the human problems of the workers; he was friendly and supportive toward the worker and provided general supervision allowing considerable individual freedom in carrying out the job. In contrast, the 'job centred supervisor' placed primary emphasis on production itself and overseeing their work closely. Both cross-sectional and longitudinal studies in this series of research supported the hypothesis that supervisory practices influence productivity.

The behavioural method of leadership study is best exemplified in Ohio State University research by Fleishman, Hemphill, Stogdill, Shartle and Pepinsky in the 1950s. This research attempted to descover precisely how leaders differ in their leadership styles. With the help of questionnaires given to a large number of persons, supervisors and subordinates alike, in a variety of organizations. The data revealed two distinct and independent dimensions of leadership; Consideration and Initiation of Structure. Consideration includes behaviour indicating mutual trust, respect and a certain warmth and rapport between the supervisor and the group. This dimension appears to emphasize a deeper concern for group member's needs and includes such behaviour as

allowing subordinates' more participation in decision making and encouraging more two way communication. Structure includes behaviour in which the supervisor organizes and defines the rule he expects each member to assume, assigns tasks, plans ahead, establishes ways of getting things done and pushes for production. This dimension seems to emphasize overt attempts to achieve organizational goal.

The consideration and structure dimensions resemble the employee-centered versus job centered approaches of Michigan Research. The difference lies in the fact that consideration and structure are independent dimensions i.e. an individual leader's rating on one is unrelated to the rating on the other.

Fleishman and Harris (1962) investigated the effects of these dimensions of leadership on employee grievances and turnover. The results showed that both the amount of consideration and structure were ralated to leader's (foremen) effectiveness as determined by employee grievances and turnover. In general, low consideration and high structure leaders were found to have high grievances and turnover. It was also observed that consideration was a dominant factor. For example, both grievances and turnover were the highest in groups having low consideration leaders regardless of the degree of structuring behaviour shown by these leaders.

The importance of these dimensions has also been found in management's ratings of supervisory effectiveness. In a follow -up study (Fleishman, 1953) of the effects of supervisory training, conducted at the International Harvester Company, it was found that

management rated those supervisors as most efficient whose scores were high in structure initiation and low in consideration.

Summarizing the above findings, it may be said that consideration and structure initiation have important influences on the effectiveness of groups being supervised or led. This effectiveness may be reflected in management's ratings of supervisors as well as in productivity of the supervised personnels. As in employee grievances and turnover, these two dimensions may very well have important influences on productivity of personnels being supervised. The rationale for this hypothesis comes from the Michigan studies in which employee centred supervisors were found to be high producers than production centred supervisors. Since the consideration and structure dimensions have some similarity with employee-centred and production centred approaches of supervision, similar influences may be observed on production with leaders varying in consideration and structure dimensions . This the present study was an attempt to assess the effects of these two independent dimensions of leadership on supervisory effectiveness as defermined by managers' ratings and group productivity in a jute industry of Bangladesh.

Method

The Sample

Forty four Senior Supervisors, from the three Mills of Adamjee Jute Mills of Bangladesh constitued the this sample in this study. They were form eight Departments :

Selection, Batching, Preparing, Shipping, Spinning Winding and Beaming, Weaving (Hessian), and Weaving (Sacking).

Assessment of Consideration and Structure dimensions of Leadership

A Bengali version of the revised form of Supervisory Behaviour Description questionnaire (Fleishman, 1953) was used in this study for measuring the Consideration and Structure dimensions of the Senior Supervisors. The questionnaire consisted of 48 items, 28 measuring Consideration and 20 measuring Structure, A 5-point scale was assigned against each item (i.e. never, seldom, occasionally, often and always) and the respondents were to indicate their reponse by marking on any point. This translated questionnaire was first administered to 10 supervisors of another Jute Mills (Latif Bawany Jute Mills) to measure the reliability of the items. They rated the leadership behaviour of their Senior Supervisor (Department in charge). The standard deviations of these ratings for each item were very low (S.D<1) which indicated the reliability of the items.

Being assured of its reliability, this Supervisory Behaviour Description Questionnaire was administered to two subordinate supervisors (randomly selected) of each senior supervisor, from each Department in Adamjee Jute Mills to assess his scores on Consideration and Structure dimensions. Thus the Consideration and Structure scores of the Senior Supervisors were obtained. The respondents were assured that their responses would be kept strictly confidential and would not be used for any purpose other than research. They were also instructed not to write their

names on the questionnaire. The median value of the scores for both structure and consideration dimensions were calculated and the supervisors scoring above the median value of a dimension were treated as high in that dimension and those scoring below that value were treated as low in the same dimension. Thus the Senior Supervisors i. e. the leaders were classified tnto 4 categories : High Consideration High Structure (HH) , High Consideration- Low Structure (LL), Low Consideration-High Structure (LH) and Low Consideration-Low Structure (LL). The distribution divided the 44 supervisors into 4 equal groups of 11.

Assessment of Supervisory Leadership Effectiveness by Manager's Ratings:

In order to assess leadership effectiveness by Manager's ratings, each of the three Mill Managers were instructed to rate each senior supervisor on a 13 -point 'overall effectiveness' rangting scale raing from 1 indicating extermely unsatisfactory to 13 indicating extermely satisfactory with intermediate labels. The managers were asked to compare each senior supervisor with all other senior supervisors at this level known to him and then place a check mark on the scale. They were also assured that these ratings would in no case be revealed to anyone inside or outside the industry.

The ratings given by Managers were later on converted into percentile scores. The range of these percentile rating scores was from 3 to 97 with a median of 50.

Assessment of Productivity

The productivity data were obtained for 24 Senior Supervisors only, working in 4 Depertments viz. Spinning. Winding and Beaming, Weaving (Hessian) and Weaving

(Sacking). Productivity record for other supervisors were not obtainable.

In order to assess the productivity under each Senior Supervsor, standard of production was first established. The standard of production for each Department was the daily average production per running machine in 3 Mills over 7 months period for which the record was available. This was obtained by dividing the average production record per day by the average number of machine per day. For each Senior Supervisor, productivity unit was taken as the percentage of standard. This was obtained by the following formula:-

Production unit groups per running machine over 7 months for a Senior Supervisors

$$= \frac{\text{Daily average production of his working}}{\text{Standard ofProduction}} \times 100$$

The reliability of the production records was determined by finding the Product - Moment correlation coefficient for odd and even numbers of weeks and corrected by Spearman-Brown formula. The reliability thus compued for Spinning Department was .65 , for Winding and Beaming was .80, for Weaving (Hessian) was .74 and for Weaving (Sacking) Department was .63. These coefficients indicated that the records of production were highly reliable.

Design

The study consisted of 2 × 2 factorial design with two levels of Consideration (high and Low) and two levels of Structure (High and Low) dimensions of Senior Supervisory leadership. The dependent variables were the rating scores and the production units per Senior Supervisor. Thus two separate Analyses of Variance were

performed: one on the rating scores and the other on productivity scores.

Results

A major purpose of this study was to examine whether the supervisory effectiveness as measured by manager's ratings varied significantly as a function of Consideration and Structure dimensions of leadership behaviour. To achieve this aim, the rating scorces were analyzed by a 2×2 Analysis of Variance. The results of this analysis, presented in Table 1, showed a significant main effect of Structure ($F = 13{\cdot}29$; $df = 40$; $p < .001$). This indicated that the effectiveness of the supervisors as rated by the managers differed significantly as a function of Structure. The supervisors with High Structure initiation had higher rating scores ($X = 64.36$) than those of supervisors with Low Structure ($X = 35.77$). The Consideration dimension was not found to be significant ($F = .47$; $df = 1.40$). There was no interaction between the to dimensions ($F = 0$; $df = 1.40$).

Table 1

Summary of the analysis of Variance of Rating Scores for Supervisors with two levels of Structure and two levels of Consideration dimensions of Leadership Behaviour.

Source	df	MS	F
Consideration	1	322.80	0.47
Structure	1	8991.85	13.29**
Consideration × Structure	1	11.60	0.02
Within Cell	40	676.58	

** $p < .001$

Supervisors scoring high in Structure and low in Consideration were rated as most proficient (X = 67.27) by the managers. Next in order were High Consideration-High Structure (X = 61.45) Low Consideration-Low Structure (X = 38.36) and high Consideration-Low Structure (X = 33.18) supervisors. Newman-Keuls multiple Comparisons of there means indicated that both LC - HS and HC - HS supervisors had higher ratings than either HC-LS or LC-LS leaders ($p < .05$) (Fig. 1). Thus, so far as manager's ratings were concerned Sturcture was found to be the dominant dimension of leadership behaviour in determining supervisory effectiveness.

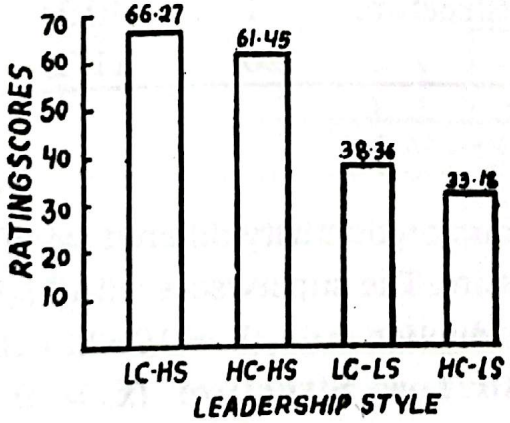

Fig. 1. Mean rating score obtained for High Consideration-High Structure (HC- HS) High Consideration-Low Structure (HC- LS), Low Consideration-High Structure (LC- HS) and Low Consideration-Low Structure (LC-LS) Supesvisors.

In order to assess the effects of Consideration and Structure dimensions of supervisory leadership behaviour on group productivity, the production units for all Senior Supervisors at the two levels of Structure (High and Low) and two levels of Consideration (High and Low) were

analyzed by a 2 × 2 analysis of variance for completely randomized samples. The results of this analysis, presented in Table 2. showed a highly significant main effect of Structure. (F= 12.11; df = 1,20; p< .005) which

Table 2

Summary of the analysis of Variance of Production scores for Supervisors with two levels of Structure and two levels of Consideration dimensions of Leadership Behaviour.

Source	df	MS	F
Consideration	1	49.41	4.30*
Structure	1	139.24	12.11*
Consideration X Structure	1	10.24	0.89
Within Cell	20	11.39	

** p < .005 *p<.06

indicated that group productivity differed significantly as a function of Structure. The supervisors with high Structure had a higher production rate ($\bar{x}$ = 106.23) than that of supervisors with Low Structure ($\bar{x}$ = 93·82). The Consideration dimension was also found to be significant in determining productivity (F = 4·30; df = 1.20; p = < .06).* The leaders with high Consideration produced more ($\bar{x}$ = 104.82 than those with Low Considertion ($\bar{x}$ = 96.67). The interaction between the two dimensions was non-significant (F = .89; df = 1,20). Thus the results indicated that both Structure and Consideration dimensions of leadership behaviour influenced group productivity and that their effects were independent.

1* For df = 1,20 and p= ·05, critical region starts from 4.35. Since the obtained F= 4.30 is very close to this value, it was considered significant.

Furthermore, comparisons of the means at the two levels of Structure and two levels of Consideration (Figure 2) indicated that the production was the highest for High Structure-High Conside ration leaders ($\bar{x}$ = 108.00). Next in order were High Structure Low Consideration ($\bar{x}$ = 104.17). Low Structure High Consideration ($\bar{x}$ = 99.40) and Low Structure Low Consideration ($\bar{x}$ = 89.17). Newman- Keuls multiple comparisons of these means showed that the differences were significant ($p < .05$).

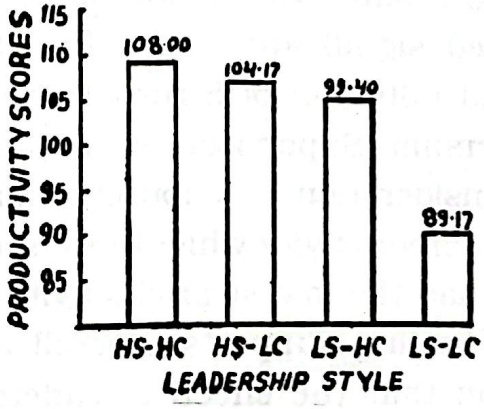

Fig. 2. Mean group productivity scores of High Structure-High Consideration (HS-HC) High Structure-Low Consideration (HS-LC). Low Structrue-High Consideration (LS-HC) and Low Structure-Low Consideration (LS-LC) Supervisors.

Discussion

This study revealed that both manager's ratings of supervisors and group productivity varied significantly as a function of Structure dimension of supervisory leadership. Supervisors with low Consideration and high Structure were rated as most effective by the managers. This finding is consistent with Fleishman's (1953) observation that management rated high Structure supervisors as most proficient. It was also observed that

structure was the dominant factor in determining leadership effectiveness so far as manager's ratings were concerned. Those supervisors were rated higher who scored high on structure dimension of matter how they scored on concideration dimension. These findings indicate that managers perceived the Structure dimension of leadership as being more important than Consideration dimension.

With regard to productivity, it was found that group productivity varied significantly as a function of both Consideration and initiation of Structure dimensions of Supervisory leadership. Supervisors scoring high in both Structure and Consideration were found to have achieved the highest group productivity while those scoring low in both dimensions had the lowest productivity under their leadership. This finding supports Stogdill and Coons's (1957) ovservation that the effective leaders are above average in both Consideration and Structure. It is also consistent with Fleishman, Harris and Burtt's (1955) observation that supervisors rated low on both traits are ineffective and often bypassed by their subordinates. It may, therfore, be concluded that leadership effectiveness is a function of both the emphasis of leader's overt attempts to achieve organizational goal as well as the leader's consideration or concern for group member's needs and their participation in decision- making.

It may also be noted that in this study Structure appeared to be a dominant dimension in leadership effectiveness. This was evident from the fact that production was higher in groups having high Structure leaders regardless of their degree of Consideration. This finding appears to contradict Fleshman and Harris (1962)

observation that Consideration is a dominant factor in determining leadership effectiveness. It may, however, be noted that leadership effectiveness was measured in terms of employee grievances and turnover in Fleishman and Harris' study whereas in this study the criterion for leadership effectiveness was group productivity. Therefore, it was quite natural to have found Structure, which emphasizes upon increasing production, as a dominant factor in this study. Perhaps it would not be wrong to say, that Consideration is dominant while leader's effectiveness is measured by group productivity. Further research may focus more on this aspect. However, on the basis of findings of this and other studies, discussed in this paper, it may be concluded that although both Structre and Consideration are important dimensions of supervisory leadership. Structure is relatively more dominant dimension compared to Consideration at least when supervisory effectiveness is measured by managers' ratings and productivity.

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PERFORMANCE, JOB SATISFACTION AND ABSENTEEISM IN REPETITIVE WORK

A. Khaleque

The relationship between job satisfaction and absenteeism is not yet quite clear. There is relatively little data on this relationship. Vroom (1964) reviewed nine studies in this connection. The results of the four of these studies (Kornhauser and Sharp. 1932; Van Zelst and Kerr, 1953; Fleishman et al., 1955; and Harding and Bottenberg, (1961) indicated a negative relationship. However, three studies (Vroom, 1962; Bernberg, 1952) showed no significant negative relationship between job satisfaction and absenteeism. But two other studies (Kerr et. al. 1951; Metzner and Mann, 1953) indicated that the magnitude of absenteeism- satisfaction correlation depends, to a considerable extent, on other variables such as the type of absenteeism measure used and the sex of the worker.

To identify the precise relationship between job satisfaction and absenteeism, there remains the need for more research in this connection. The present investi-gation was designed to find out the relationships between job satisfation and absenteeism on the one hand and performance and absenteeism on the other hand.

From Dhaka University Journal of Phychology, 1980, Vol. 10, 17-22. *Reprinted by permission of the author.*

Method

Research setting and the subjects

The research was conducted in a cigar factory. A total of 40 subjects, all female, was taken in this study. The mean age of the subjects was 27.50 years and the mean experience in the present job was 7.90 years. The educational qualification of the subjects renged from primary school to lower secondary school level.

Task of the subjects

The task of the subjects consists in feeding machines with tobacco leaves for wrapping and finishing cigars. The task is machine-paced, but the machine can be stopped at any point by pressing a pedal. This short- cycled repetitive work seems quite different from common assembly tasks in which the parts to be assembled are always identical. Tobacco leaves, being biological products, are quite variable and so at every cycle of the machine the workers have to make a decision to place a tobacco leaf on the wrapper die in such a position that as many cuttings as possible can be made from the leaf. Immediately after placing a leaf on the die, the workers have to take away the hands and let the cutting rollers pass over the die, and then they have to replace and readjust the leaf on the die for the next cutting as soon as the cutting rollers have left the die , and so on.

The workers have to remove the tobacco waste from the die, either manually or by pressing aside the knee lever of the waste blowing device. They have also to check the wrapped cigars, and either transfer them manually from the bowl at the conveyor belt to the tray, or monitor the

automatic cigar transfer device. Thus within a brief work cycle of three seconds, the workers have to check a tobacco leaf, to place it on the die in the proper position, to remove their hands from the die, to let the cutting rollers pass over the die, to check cutting, and gluing, to inspect wrapped cigars, to remove waste of tobacco leaves, to transter wrapped cigars by hand or to inspect the automatic transfer device, etc. The task appears to put heavy and continuous pressure on the perceptual and mental faculties of the workers.

Procedure

The workers were divided into the high and low performance groups on the basis of the quantity and quality of their production. They were divided into the satisfied and dissatisfied groups on the basis of their scores on the Brayfield-Rothe scale (Brayfield-Rothe, 1951) of job satisfaction and according to the Brayfield-Rothe's criterion of division. Incidences of absenteeism of the workers during the year 1975 and 1976 were collected from factory records.

Results

The findings of the present study about absenteeism showed that the incidence of absenteeism of low performance subjects was significantly greater than that of the high performance workers (see Table 1). However, the results showed no significant difference between the subjects of the satisfied and the dissatisfied group in the incidence of absenteeism (see Table 2).

Table 1.

Incidence of absenteeism of the high and the low performance subjects during 1975 and 1976.

High performance subjects		Low performance subjects	
Token number	Frequency of absence	Token number	Frequency of absence
2081	1	2272	4
1809	5	2090	6
2245	1	1979	5
1183	4	1759	4
584	0	1714	3
2121	3	2040	6
1651	1	2153	4
1548	3	2237	5
1435	1	1917	0
1900	2	1983	4
2098	1	1404	0
1989	3	1986	1
1555	2	1822	0
1747	4	1966	5
2167	3	1134	2
1276	3	2321	5
1920	3	1772	3
2285	0	2414	2
1027	0	2295	4

Note: The Mann-Whitney U-test shows that the difference between the high and low performance subjects in the incidence of absenteeism is significant ($U=130$; $p < .05$, one tailed).

Table 2.

Incidence of absenteeism of the satisfied and dissatisfied subjects during 1975 and 1976.

Satisfied subjects		Dissatisfied subjects	
Token number	Frequency of absense	Token number	Frequency of absence
1555	2	2285	0
2081	1	1651	1
1747	4	1809	5
1876	6	2098	1
2245	1	1772	3
1900	2	1759	4
2121	3	1986	1
1183	4	1966	5
584	0	2153	4
1548	3	1822	0
1435	1	2318	5
1920	3	2272	4
1276	5	1917	0
2321	3	2295	4
1989	3		
2414	2		
2167	3		
1983	4		
1027	0		
1724	3		
2040	6		
2090	6		
2237	5		
1979	5		
1404	0		
1134	2		

Note: The Mann-Whitney U-test shows that the difference between the satisfied and dissatisfied subjects in incidence of absenteeism is not significant (U= 170; p= .36 one tailed).

Discussion

The present study provides evidence of a significantly greater rate of absenteeism of the low performance than of the high performance workers (see Table 1). But no significant difference in the incidence of absenteeism has been found between the satisfied and dissatisfied subjects (see table -2) .

Reviews of the literature in this field indicate that job satisfaction is not always strongly related to absenteeism (Brayfield & Crockett, 1955; Herzberg, Mausner, Peterson and Capwell, 1957; Porter and Steers, 1973; Schuh, 1967 and Vroom, 1964). After Reviewing 29 studies relating to absenteeism and job satisfaction, Nicholson et al. (1976) show that the relationship is negative or zero in every case.

In the light of the results of the present study, it may be concluded that the popular belief that job dissatisfaction is a major cause of absence from work has doubtful empirical basis.

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PERSONAL FACTORS RELATED TO ROAD ACCIDENTS

Nasreen Wadud

Large number of traffic accidents occur every day, especially in the cities and in the suburaban areas. There is a growing concern among the psychologists and the city road planners about how to minimise the frequency of accidents. Traffic conditions, conditions of the vehicles and pesonal factors of the drivers are some of the important factors that may be related to road accidents. To speak about Bangladesh, in 1983, 1514 accidents occured, 125 persons died, 314 were seriously injured and 1081 received minor injuries. In 1984, 1721 accidents occured, 175 persons died, 345 were seriously injured and 1207 received minor injuries. In 1985, 1825 accidents occured, 218 people died, 544 were seriously injured while 1156 persons received minor injuries (D.M.A. Traffic, 1986). From the above statistics it is clear that the accident rate is becoming higher and higher day by day which is dangerous for a developing nation. According to the Road and Highways Department (1983), 70% of the accidents occur because of drivers' fault, 13% due to faulty vehicles, 40% due to overloading, 86% due to bad condition of the road. So far, very few studies have been carried out in Banglaadesh to point out the situational and personal factors which play important role in the accidents.

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It is now generally accepted that accidents are due to physical, psychological and personality variables which operate jointly upon the individuals involved in accidents (Tiffin and McCormick, 1968). The influene of these variables upon particular individuals are unique because every person has some basic characteristic related to his ability which is also related to and revealed in the unique driving pattern. (Green-Shield and Platt, 1967). Individual personal characteristics give rise to one's predisposing behaviour tendencies that, in turn, influence potential accident behaviours, thus in a sense contributing to the incidence of specific accident behaviour of an individual in any given situation. For motor vehicle accidents a study of 150 collisions by the IRFS (1973) was carried out and the results indicate that decision errors and recognition errors are dominant. It was found that vision is related to accident frequency (Kephart & Tiffin 1950). Fatigue also can be an accident determinant in any individual. In a Shell Factory in England during World War II, the accident rate among women workers was reduced by more than 60% when the factory-changed from a twelve hour to ten hour of work a day, because of this reduction of the working hours of the workers, the workers were less fatigued and as such the rate of accident reduced (Vernon 1945). There is close relation between accident rate and amount of job experience (Farmers and Chambers 1926). The older, more mature workers have lesser accidents than the younger ones (Van Zelst 1954). Lauer (1962) reported accidents of motor automobiles driven from Iowa and found that the rate of accidents is high among young drivers than the old ones.

The main objective of the accident research is to find out the causes of accident which may help reduce the

number of accidents. Human factors can be treated as major cause of accidents. Faulty or inadequate inspection of equipments or vehicles are also major factors which lead to such accidents. Thus an accident attributed to equipment failure may in many cases be the result of human error. This is the reason why investigators tried to find out relationship between accident rates and personal factors. Variables found important in such studies are psycho-motor skills, emotional problems, personality traits, attitude, sensory capacities, health experience, age, sex, education and family relationship. So the persent study was designed to detect some personal factors which could be responsible in causing accidents.

Method

Subjects

The subjects comprised of 80 drivers who met with accident and were taken randomly from the Inter District Drivers' Pool. Their ages ranged from 20 to 60 years and the mean age was 40 years. Their mean experience was 21.5 years and ranged from 3 years to 40 years. The educational qualification of the subjects ranged from illiterate to S.S.C level. Out of the 80 drivers 61 were married and 19 unmarried.

Measuring Instruments

The research method employed to collect data for the investigation was that of field study through questionnaire. For this purpose an interview schedule consisting of 38 items was developed. Of these, four items were specially related to workers' family life.

Procedure

For the purpose of the study, 80 drivers from Drivers' Pool were selected randomly. By employing the interview schedule subjects were interviewed in a personal face to face situation ensuring privacy and intimacy. With respect to each item, subjects had to answer by saying either "Yes' or "No".

Results And Discussion

It may be mentioned again that the interview schedule included some specific questions which were related to the personal factors of the vehicle drivers. Subjects' response to the interview schedule were analysed into percentages and these results are presented in tables1 through 5.

Table 1. Drivers' feeling of fatigue (percentage of yes/no responses) while driving.

Response categories	Drivers
Yes	28.75%
No	81.25%

The above table reveals that the percentage of "yes" is lesser than "no" response, i. e., most of the drivers do not feel fatigued.

Table 2 : Percentage of marital happiness of Drivers

Response categories	Drivers
Yes	54.25%
No	45.75%

The above table shows that the great majority of respondents are happy in their marital life (54.25%).

Table 3 : Percentage of Drivers who have defective eye sight

Response categories	Drivers
Yes	7.5%
No	92.5%

The above table indicates that vast majority of drivers are free from defective eyesight.

Table 4 : Percentage of "yes" /"no" response of the Drivers about whether they go sufficient time for sleep.

Response categories	Drivers
Yes	68.25%
No	31.75%

It may be examined from Table no 4 that majority of drivers get sufficient time for sleeping (68.25) .

Table 5 : Drivers' age and accident rate.

Age	Average of accident rate
20-30 years	4
31 to 40 years	2
41 to 50 years	0
51 to 60 years	0

Drivers of 20 and 30 years of age had 4 accidents last year. Moreover, as the age limit of the drivers go high, the rate of accidents reduces. It supports the previous finding that the rate of accident is high among young drivers than the old ones (Lauer, 1962).

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Table 6 : Drivers, experience and accident rate.

Experience	Average Accident Rates last Year
3-5 years	4
6-10 years	1
11-25 years	0
26-40 years	0

The findings reveal the drivers having more job experience have lesser accidents in their account last year. Past studies also show that there is a relationship between accident rate and job experience (farmers and Chambers 1926).

It appears from the present study that prsonal factors are not the only factors in accident causation. On the contrary, personal factors in combianation with situational factors might cause accident. So it would be appropriate for a future study in this direction to take both P and S factors into consideration. Moreover, if the city planners plan the roads and highways scientifically and the vehicles are examined well before starting, the rate of accidents can be minimised.

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SHIFT AND NON SHIFT WORKERS' RESPONSES TO SOME FAMILY RELATED QUESTIONS

Azizur Rahman

Shiftwork, though originally restricted to certain industries, seems to have spread to a great extent over the last few decades to the most diverse branches of economic activity both in industrially developed and developing countries. However, various studies and reviews conducted so far in this area have demonstrated that shift workers consistently experience more physical, psychological, and social problems than normal day (non-shift) workers (Carpentier & Cazamian, 1977; Dunham, 1977; Kumashiro, Mikami, & Saito, 1982; Maurice, 1975; Mott, Mann, Mcloughlin, & Warwick, 1965; Smith, Colligan & Tasto, 1982).

It is an established fact that the main activities of our societies are organised around the "normal" working day, but shiftwork as a way of organising the use of time forms "unconventional" patterns. Disadvantages of being subjected to work schedules that change every fortnight, every week, or sometimes even several times a week, are quite unerstandable. Shiftwork is, thus, often contrasted with normal day work, and those who work under a system of two or three 8-hour shifts generally consider that they are not leading a normal existence, that thier life is "different", etc.

From *Bangladesh Journal of Psychology*, 1986, Vol. 9, 13- 19.
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One of the most common spontaneous complaints about shiftwork is that it interferes with family life (Maurice & Monteil, 1965; Spencer, 1970; Ulich, 1957). Several studies (Banks, 1960; Brown, 1959; Mott et. al. 1965) have shown that the wives of the shift workers have to change the organization of domestic life every week and that they find it more dificult to prepare meals. Shift workers also often complain of reduced opprtunities for contact with their children (Carpentier & Cazamian, 1977; Ulich, 1957).

Against the background of almost negative effects of shiftwork on family life, there are also indication that shiftwork does not disturb normal family life. It has been pointed out by Wedderburn (1981) that wheras 33% of his respondents claimed to be worse off for "time with the family" 42% claimed that they were not affected, and 19% claimed that they were better off in this respect. On the other hand, an inquiry by Chazalette (1973) showed that shiftwork had both its advantages and inconveniences for family life.

From the foregoing discussion, it appears that though the shiftworkers are in the general disadvantage as compared to their counterparts in the normal day work system, the effect of shiftwork on the family life of the workers is still inconclusive. The present study, therefore, aims to find out whether there are any differences in the response patterns of the shift and non-shift workers on questions related to family life.

Method

Subjects

The sample of the study comprised 276 shop floor workers. Of them, 164 were shift workers and 112 non-shift (normal day) workers. They were skilled artisans and

regular employees of an electrical industry. The subjects were all males having been selected by random sampling method.

All the subjects were married, having no instances of divorce. The educational level of the subjects ranged from primary to post graduation and none was illiterate. Subjects' age and experience ranged from 22 years to 54 years and 1 year to 24 years respectively.

Measuring Instrument

The method employed to collect data for the investigation was that of field study through questionnaire. For this purpose, a structured interview schedule consisting of 16 items was constructed. Of this, 12 items were concerned with demographic and other necessary information and 4 items were concerned with demographic and other necessary inforamation and 4 items were specifically related to the workers' family life For the specific family related questions, the subjects had to answer by saying either "yes" or "no"

Procedure

For the purpose of the study, 10 shops/departments covering shift and nonshift systems of work were selected. While selecting the departments, care was taken to ensure that the nature of work of the shop floor workers in these departments was camparable as far as possible. The Supervisor or section-in-charge of each of these departments was contacted for having a completed list of the workers in the respective department/section as well

as for securing his full cooperation in carrying out the interview with the workers. With the help of the said list, the subjects from each department were actually selected at regular intervals.

By employing the interview schedule, interview with each of the subjects was conducted in a face-to-face situation ensuring privacy and intimacy.

Results And Discussion

It may be mentioned, again, that the interview schedule included some specific questions which were on the family life of the workers with reference to their working hours. Subjects' responses to these questions were analysed into percentages and the results to this effect are presented in tables I through 4.

Table 1

Shift and Non-shift Workers Feelings of Marital Happiness (percentages of yes/no responses)

Response Categories	Shift Workers	Non-Shift Workers
No	9.1%	3.6%
yes	90.9%	96.4%

The above table shows that though the great majority of the respondents in both the groups were happy in their marital life, Yet, compared to the shift workers (90.9%), a higher percentage of the non-shift workers (96.4%) felt the same. This indicates that cases of marital unhappiness are likely to be higher among the shift workers.

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Table 2

Percentages of yes/no responses of the Shift workers and the Non shift workers on the Question 'whether they get enough time to look after their children'.

Response Categories	Shift workers	Non-Shift workers
No	34.93%	27.0%
Yes	65.07%	73.0%

It is evident from toble 2 that a higher precentage of the non shift workers (73%) rather than the shift workers (65.07%) affirmed that they used to get enough time to look after their children. That is, in a relative sense, shift workers are deprived of the opportunity to look after their children.

Table 3

Percentages of yes/no Responses of the Shift Workers and the Non-shift Workers on the Question 'whether they feel that their working hours create problems for their family members'.

Response categories	Shift workers	Non-Shift workers
No	19.51%	33.93%
Yes	80.49%	66.07%

The above table reveals that the percentages of 'yes' responses were higher in the shift working group (80.49%) than in the non-shift working group (66.07%). In other words, vast majority of the shift workers felt that their working hours create problems for their family members.

Table 4

Percentages of yes/no responses of the Shift Workers and the Non-shift workers on the Question 'whether their working hour requires their wife and family members to make special arrangements for their (i.e., respondents') meals and sleeping time'.

Response categories	Shift workers	Non-Shift workers
No	15.85%	33.04%
Yes	84.15%	66.96%

It may be examined from table 4 that the differences in the response patterns of the two groups on the question under consideration were quite pronounced. Compared to the non-shift workers (66.96%), a higher percentage of the shift workers (84.15%) affirmed that their working hour requires their wife and family members to make special arrangements for their (respondents') meals and sleeping time.

The results of the study, therefore, show that compared to the shift workers, the non-shift workers are better placed in their family life. That shiftwork interferes with family life, that shift workers have lesser opportunities for contact with their children—are in general agreement with the past findings (e.g., Carpentier & Cazamian, 1977; Maurice & Monteil, 1965; Spencer, 1970; Ulich, 1957). The findings of the present investigation, thus, give further confirmation to the view that shiftwork has adverse consequences for the family life of the persons who are directly working under this system.

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Suggestions for Further Study

Some investigators (e.g., Wedderburn, 1981) claim that demographic variables might moderate the effects on family life. But this study did not intend to investigate the moderating effects of demographic variables. So, a future study on the effects of shift system may take the demographic variables as moderators. Secondly, the wives and family members of the shift workers were not included as subjects in the present investigation. It is especially the wives of the shift workers who face the problems resulting from the changing work schedule of their husbands. Thus, it would be worthwhile for a future investigation in this direction to take the wives and other family members of the shift workers as subjects.

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* OPINION OF MANAGERS ON TRAITS NECESSARY FOR MANAGEMENT : BANGLADESH CONTEXT

Rowshan Jahan

Management jobs have been considered as most important in an industrial organization. Effective direction of human efforts, both in the public and private sector of economy, is a key to the efficient utilizations of human and material resources. Business management, termed as a special blend of arts and science, is as vital to technologically developed countries as it is to developing nations seeking progress through industrial modernization. Extensive research have been carried out on business management particularly on selection and training of managers.

Bangladesh is also organizing its efforts to develop management skill. Development of managerial expertise is regarded as vital to rapid improvement of national economy. Its major industries were declared nationalized after independence in 1971. Later on, however, private ownership was allowed in order to improve the shattered economy of the country. At present mixed economy prevails and there are two types of industries in the country-public and private sector industries. Many of these industries have management development programs.

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Development of management personnel only through training is not effective. Proper selection of managers is an essential pre-requisite for having good managerial forces. The importance of choosing right persons for managerial positions cannot be over-emphasized. "The task of training people in management is difficult enough without starting with the handicap of unsuitable human material. Some people never grow-up.....the capacity for the acceptance of new ideas in some people, even when still young is very low indeed. The power to reason accurately and speedily is not given to everyone" (Brown and Raphael, 1948).

But the task of selection of managers has always been a challenging problem. This is because the job is a very complex one which is affected by multifarious factors, for example, it varies with the type of organization, level of management etc., and even with the changes of country's economic and socio-political conditions. The major problem is to predict criteria of job success. the intellectual and personality characteristics are better predictors rather than specific abilities. Taylor and Nevis (1957) rightly point out that as the job is very complex, to isolate specific abilities may not be sufficient. Intelligence measures alone are not also good predictors because to get into management requires a fairly bright person in the first place, Thus personality factor is often considered as an important predictor for managerial job.

What are the personal qualities which are taken into consideration for effective management? During the past decades many attempts have been made to discover the personality characteristics that distinguish successful from unsuccessful managers. Although no distinctive profile of the successful managers has emerged.

suggestions have indicated that successful managers tend to possess certain qualities normally not found in less effective ones. The positive qualities most frequently mentioned in thses studies include drive or initiative, objectivity, emotional stability, flexibility, skill in human relations, mental alertenss and analytical skill, good judgement, willingness to take risks and breadth of knowledge and interest. Holden, Pederson and Germane (1968) interviewed 260 executives of fifteen leading industrial corporations and agreed that these qualities are extremely important for success in top management positions. Campbell et al. (1970) report a list of qualities said to be necessary for managerial effectiveness : able to sustain defeat, alert, achievement oriented, assertive, capable of good judgement, originality coupled with stability, competitive, decisive, dynamic, energetic, extraverted, honest, intelligent, self-controlled, group-oriented, confident etc. Jurgensen (1966) asked several groups of personnel men and executives numbering two hundred and ten persons, to sort 120 adjectives to describe 'most and least descriptive of successful key executives' and observed that decisive, aggressive, self-starting, productive, determined, energetic, creative, intelligent, responsible are some of the most descriptive of successful executives. Bower (1978) listed eight fundamental qualities for a leader today and also in the year 2000. These are character, initiative, desire to serve people, intellect, awareness and perception, foresight, flexibility and persuasiveness. Most of the research directed in this line has been concerned with prediction of managerial success on the basis of various trait measures. Of the personality traits that heve been proposed as critical for management success, those described by Nash (1963), Dunnettee (1967) and Ghiselli (1963) are noteworthy. Nash

found effective managers differed from ineffective ones in their preferrnce for activities that are somewhat risky, require independent thinking, allow them to interact with and dominate others. Dunnettee observed that effective leaders tend to be bright and high in need for achievement, power and autonomy. Ghiselli's list of key traits consists of intelligence, initiative, supervisory ability, self assurance etc.

Research reports on executive selection published so far have admitted the need for further probing about personal attributes or some common traits. It has been observed that people of unquestioned high intelligence often turn to be ineffective in managerial position. This is because interpersonal relations are needed very much for the job. A good number of studies have shown the relationship of personality traits with executive jobs. Guilford (1952) found that the traits significantly related to success of executives are sociability, lack of inferiority feelings, cooperativeness and masculinity. Hicks and Stone (1962) intended to evaluate the effectiveness of a battery of tests discriminating between successful and unsuccessful managers. The Ss were 76 supervisors and managers of a technical plant. The purpose was to identify certain basic characteristics for selection, promotion and training purposes. The results show that the four Rorschach Test sub-scores W(Theoretical)Dd (Pedantic), M (Activity Potential) and H (Human relations) had the highest relationship with the criteria. The S-O Rorschach identified certain temperamental characteristics which were related to managerial success. For example, it was interpreted that a successful manager is one who shows a great deal of emotional strength and tends to work at

things from a broad theoretical point of view. Grimsley and Jarrett (1973) found that intelligence and personality measures are good predictors of managerial effectiveness. Their Ss were 50 top and 50 middle managers chosen randomly from 437 male candidates for key managerial positions. The Gordon Personal Profile, Grodon Personal Inventory and Guilford Zimmerman Temperament Survey were used for personality measurement. Significant differences were found between two groups in respect of general activity, ascendance, objectivity, personal relations, ascendance-sociability, general activity-restraint in Guilford Zimmerman scale and ascendancy, personal relations and vigour in Gordon Scales.

In the light of the above discussion, it can be argued that managerial effectiveness depends largely on the individual i.e. the personal characteristics that make an individual a good or poor leader. Thus prediction of managerial success can be made on the basis of various trait measures. The persent study was done along such lines and an attempt was made in this survey to get a view from the Bangladesh context, A number of traits considered important for effective management were collected (Jahan, 1982). It became important to know the opinion of concerned persons (i.e., the managers who are actually doing the job) as well as to arrive at a general consensus regarding the importance of these traits. Thus the opinion of nationalized and private industries managers were intended to be collected. The reason behind this is obvious. These are the two types of industries now prevalent in Bangladsh. if there is similarity among the managers of these two types of

industries, it will mean that the managers, in general, have this opinion. The study was conducted particularly in this line. The aim of the study was to investigate if managers of nationalized and private sector industries possess similar opinion regarding qualities required for management in Bangladesh.

Methods

The Sample

The sample of this study consisted of 99 male managers of nationalized industries and 56 male managers of private industries. They were top (general manager, managing director), middle (deputy general manager, departmental dead), and junior level managers (assistant manager). The mid and junior level managers were found to be from various departments : production, accounts, administration, marketing, store and engineering. The age of nationalized industries managers ranged from 25 to 54 years and the age of private industries managers ranged from 29 to 55 years. The experience of the former group ranged from 2 to 26 years and experience of the latter group ranged from 3.50 to 29 years. Educational qualification ranged from below SSC to Post graduation level.

Instrument

A questionnaire was perpared by the author which asked the respondents to rank the traits in respect of importance. There were 18 traits namely Leadership, Sociability, Objectivity, Responsibility, Honesty, Achie-

vement,Initiative, Emotional Stability, Firmness/sticking to principle, Cautiousness, Adaptibility, Loyalty, Self-control, Originality or Creativity, Personal relations, Endurance, Risk taking and Vigour. Each trait was defined. The questionnaire included instruction as to how to rank order the traits i.e., the S is to put 1 in the box by the side ot the trait he considers most important for management, put 2 if he thinks next most important etc. They were also asked to add some more traits, if any, they think important for successful management. The questionnaire included items to collect information from the respondents regarding their age, experience, education, name of industry, department and title of the job.

Procedure

At first representative sample of industries, both public and private, were chosen randomly from lists of enterprises all over the country. Thereafter the questionnaires were mailed to the Heads of these selected enterprises. The top executive of each organization was asked to distribute the questionnaires among his colleagues/subordinate officers of managerial rank. A stamped envelope was attached with each questionnaire for the expected reply of the respondents. Some of the questionnaires were personally distributed by the author. Ninety-nine managers of nationalized sector and 56 managers of private sector responded to the questionnaires. The nationalized industries included Adamjee Jute Mills, Kohinoor Group of Industries, Khulna Newsprint, Bangladesh Machine Tools Factory, Ashuganj Fertilizer Factory, Dhakesweri Cotton Mills, Mowla Textile Mills Ltd.,

National Ceramic Industries Ltd., Dhaka Vegetable Oils, Joypurhat Sugar Mills, Chittagong Steel Mills, Karnophuli Paper Mills Ltd.. Bangladesh Insulator and Sanitory Ware Factory and Mohini Mills Ltd. The managers of the following private industries responded to the questionnaires : M/s Lever Bothers, Fisons Bangladesh Ltd. Bangladesh Oxygen Ltd, Glaxo Bangladesh Ltd,, Hoechst Pharmaceuticals Co. Ltd., KSB Pumps, Bangladesh Tobacco Company, Philips Group of Companies and Pfizer Laboratory Ltd. Although all managers of the selected enterprises were the samples of this study, all did not reply.

Results

Table 1 Compares managers of nationalised industries and private industries in respect of traits and their mean scores.

The Table shows that there was a very high correlation between the ranks (Rho = .98) as well as mean scores (r = .97) of the traits as selected by managers of public sector and those as selected by managers of private sector.

There were very few responses to the question 'add some more traits'. Suggested qualities, however, were overlapping the traits which had been enlisted.

Table 1.

Mean scores and ranks for traits given managers of nationalized and private industries.

Traits	Nationalized Industries N = 99 Mean Score	Rank	Private Industries N = 56 Mean Score	Rank
Leadership	3.66	1	3.95	1
Sociability	8.76	10	9.12	12
Objectivety	6.20	5	5.79	4
Responsibility	4.03	3	4.43	3
Honesty	5.49	4	6.14	5
Achievement	8.23	9	7.50	8
Initiative	3.81	2	3.97	2
Emotional Stability	8.10	8	7.77	9
Firmness/Sticking to principle	6.81	6	7.29	7
Cautiousness	10.69	16	10.77	16
Adaptability	9.45	12	8.14	10
Loyalty	9.67	13	10.54	15
Self Control	9.01	11	9.02	11
Originality	7.42	7	7.10	6
Personal Relations	9.94	15	9.50	13
Endurance	10.70	17	10.95	17
Risk taking	12.45	18	12.69	18
Vigour	9.84	14	10.43	14

Discussion

The aim of the study was to see if managers of nationalized and private industries of Bangladesh have similarity in opinion regarding traits necessary for management. The results of the study show that there is high agreement between the two groups of managers. The correlation between two sets of ranks was very high (Rho = .98). The coefficient of correlation between mean scores of the traits as selected by private industries managers and nationalized industries managers was also very high (r = .97). On the basis of such finding it can be said that managers of Bangladesh consider these traits as important. This is supported by their virtually non response to the question 'add some more traits'. In their remarks, however, some of the respondents reported that self-control can not be sharply differentiated from emotional stability. Initiative and vigour are also overlapping (as defined by the author). Thus the list of traits can be reduced, for example, Emotional stability rather than self-control, and Initiative rather than vigour can be retained. And now from the list of traits the most important ones (i.e. on the basis of mean ranking) can be selected and considered tor selection of managerial personnel. The author recommends that a personality test be constructed which would measure these traits. This can help to improve managerial selection in Bangladesh.

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THE RELATIONSHIP BETWEEN CREATIVITY, SELF-CONCEPT AND ACADEMIC ACHIEVEMENT AMONG SECONDARY SCHOOL STUDENTS

Mehtab Khanam

Because of the widespread interest among psychologists, educators and people in general in the results reported by Getzels and Jackson (1962) with regard to the relationship of creativity to school achievement, it seems desirable top explore the relationship in considerable detail. Getzels and Jackson demonstrated that a group of individuals whose measured creative ability was in the top 20% of their school and whose measured intelligence was in the lower 80% was equivalent in achievement to a group whose measured intelligence was in the top 20% and whose measured creativity was in the lower 80% (both groups were superior in achievement to the population from which they were drawn). Recently researchers on man's creative abilities have increasingly turned their attention to this problem and its implication for education. The purpose of this study was to obtain more information about the functional relationship between creativity, self-concept and academic achievement.

There is much research evidence to suggest that academic achievement correlates positively with self-concept (Rogers and Baily, 1971; Martin, 1962; Brookover,

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Schweiter, Beady, Flood and Wisembaker, 1976; Caplin, 1969; Stipek and Hoffman, 1980), and creativity (Getzels and Jakson, 1962; Guilford, 1968, 1977: Schempp, 1981). But there appears to be a low positive relationship between creativity and academic achievement (Torrance, 1965). According to Guilford (1968), traditional intelligence tests tended to require convergent thinking while creativity required divergent thinking. Guilford (1959) defined creativity "as and ability involving fluency, flexibility and originality". Johnson and Johnson (1975) defined creativity "as the process of bringing something new into existence". According to Bruner (1962) and Priget (1971) "it is a moment of sudden, surprising insight". But there is disagreement on whether it is an inherited trait or a process anyone can learn (Johnson, 1979). Results of studies also suggested that most creative children are not necessarily most intelligent nor are they those who score least on achievement tests. Children from lower-class income groups have been found to be more creative than children from lower-class income groups (Gezi, 1969).

Self-concept, broadly defined is a "person's perception of himself. These perceptions are formed through ones' experience with an interpretation of ones' environment and are influenced specially by reinforcements, evaluations by significant others, and one's attributions for ones's own behaviour" (Shavelson, Hubner and Stanton, 1976). Considerable research evidence exists to suggest a relationship between self-concept and academic achievement. Hansford and Hatti (1982) examined the relationship between various self-measures and measures of performance and achievement. The studies represented a total sample of 202, 823 persons and produced a data base of 1,136 correlations between self-rating and

performance measures. A range in the relationship of-.77 to .96 was reported with an average correlation of .21. In one study, done in Bangladesh, it was found that the students with high self-concept had significantly higher academic achievement than those with low self-concept (Begum and Haque, 1976).

Self-concept changes may be regarded as a change of attitude towards the subject and not a change in academic ability. At the elementary level, if a positive attitude towards learning can be fostered in students, it seems likely that a positive self-concept would result. Research conducted with Indian Children in Northern Canada (Kirkness, 1978, Lenton, 1979) has shown that there is an age-grade retardation that begins at grade one and tends to increase as Indian students progress through school. Since academic achievement has been found to correlate positively with self-concept (Brookover, et al., 1946; Caplin, 1969 Stipek and Hoffman, 1980) it might be assumed that as Indian child progresses through the school, his/her self-concept and academic achievement would tend to decrease simultaneously. The literature supports the possibility of changes in self-concept and creative perception resulting from sepcified training activities and programs for the gifted as well. The findings are mixed, however, as to whether self-concepts increase or decrease during the course of such a program me. Two studies (Fults, 1980; Rodgers, 1979) reported a decrease in the self-concepts of gifted students when placed in groups with others of similar ability. Two other studies found that self-concepts of students increased during the course of a programme (Ketcham and Snyder, 1977; Lutfiyya, 1977).

On the evidence of previous research findings, high positive correlations should exist between self-concept and academic achievement. The relationship among these

variables and creativity should be less striking, but there is a dearth of research pertaining to academic achievement involving Bangladeshi students in particular as related to their creativity and self-concept. Empirical evidence pertaining to the relationships among these important variables will solve to clarify the nature of these concepts. Knowledge generated about these will extend educators' understanding and insight which will eventually result in the improvement of instructional sequencing and management. So, the present study was undertaken to determine to what extent the above mentioned variables are related.

Method

Sample

The sample of this study consisted of 102 students. All of them were taken from two schools of Dhaka city. They were students of Class IX and their age ranged from 14 to 16 years. Only these students were selected who appeared in the last three final examinations in these two schools. All the students were administered Bengali version of Khatena Torrance Creative Perception Inventory and Bengali version of Piers-Harris Self-Concept Scale.

Measures Used

Measure of Creativity. The translated Bengali version of Khatena Torrance Creative Perception Inventory or KTCPI (1976) was used to measure creativity. KTCPI consists of two separate tests of creative self-perceptions, What Kind of Person Are You ? (WKOPAY) and Something About Myself (SAM). Both tests can be administered in group to adolescents between the ages of approximately 12 and 20 in grades 7 through 12, and to adults aged 20 and above or

beyound high school. WKOPAY and SAM are measures of relatively different dimensions of creative personality and can be used independently.

What Kind of Person Are You ? is a 50-item forced-choice creative personality inventory, Torrance surveyed over 50 studies and identified some 84 personal characteristics which differentiated creative from non-creative persons. On the basis of rankings by expert judges 50 items were retained and placed in a forced-choice format. The items are for respondents to make a choice between two socially desirable characteristics and socially undesirable characteristics on other items.

Torrance and Khatena reported stability coefficients of .73 for WKOPAY. The validity evidence they reported indicates that the scores on their instrument are significantly related to the ability to produce original images, to write original stories, to produce provocative questions etc.

The original scale was translated into Bengali by the the author. Then it was shown to two judges who had competence in both Bengali and English. Some minor corrections had to be done. The reliability was studied on a group of 100 childredn in the age range of 12-14 years. The test-retest reliabilities over a period of one-month was .87 ($p<.01$).

Measure of Self-concept. Self concepts of the students were measured by Piers-Harris Childrens' Self-Concept Scale (1969), a paper - pencil scale with 809 'yes' or 'No' questions. Self-concept, as assessed by this intrument, is defined as a relatively stable set of self-attitudes reflecting both a description and an evaluation of one's own behaviour and attributes.

The Bengali version of the scale was done very carefully so that the meaning and idea remains the same. It was first checked by an expert in Bengali and then by some senior teachers of the Department of Psychology. Differences in opinions among judges regarding any translated items were reviewed. It was necessary to modify two items. To test the reliability of the scale, it was administered to a random sample of 10 students. Four weeks later, the original scale was given to the same students. A high positive correlation was found between two sets of scores ($r = .98$; $p<.01$).

Measure of Academic Achievement. With the permission of the Principals of the selected schools, the total marks obtained by each student in last three final examinations was obtained.

Scoring Procedure

Creativity. The test is scored by reference to the key provided in the scoring quide with responses to each item scored 'I' or 'O'. Credit ranges from 1 to 50 on the complete scale of 50 items. All blank responses are scored zero. High score indicates high creativity an low scores indicate low creativity.

Self-Concept. Items are scored in the direction of positive self-concepts so that higher the raw scores, the more positive is the child's assessed self-concept. The total raw score is the total number of responses marked in the positive direction. Omitted and double responses are not included in the total raw score.

Academic Achievement. Total marks obtained by each student in 3 years were added and then average marks were calculated.

Procedure

The Bengail version of both the above mentioned scales were administered to all 102 students taken as subjects. Arrangements were made before hand with the respective class teachers. Test instructions given in the manual were followed. It was stressed that there was no right or wrong answers and the results would in no ways affect their school grades. A space was provided on one questionnaire for the subjects to answer some questions regarding the age, sex, class, school, birth order, parents' education, profession, income etc.

Results

Pearson's product Moment Correlations were computed to examine the relationships between pairs of variabled. Tests of statistical significance were also conductes. The obtained values of correlation are presented in the following tables :

Table 1

Correlation (r) between Creativity and Self-Concept

No. of students (N)	Correlation r	Significance of Correlation t	p
102	.22	2.2556	< .05

Table 2

Correlation between Self-Concept and Academic Achievement

No. of students (N)	Correlation r	Significance of Correlation t	p
102	.24	2.4723	< .05

Table 3

Correlation between Creativily and Academic Achievement

No. of students (N)	Correlation r	Significance of Correlation t	p
102	.17	1.7251	ns

Discussion

The results of the present study revealed that there is a significant positive correlation between creativity and self-concept and also between self-concept and academic achievement. The results are in agreement with the previous results (Ross and Parker, 1980; Winne et al, 1982; Sripek and Hoffman, 1980; Schempp, 1981). The relationship between creativity and academic achievement was not significant. Since the results of previous studies suggested that the most creative children are not necessarily the most intelligent nor are they those who score best on achievement tests (Gezi, 1969), it was expected that the relationship between creativity and academic achievement would be less striking. The obtained relationship between these two variables is also in the expected direction. Torrance (1965) and Guilford (1968) suggested that more creative children may not be the top achievers.

The results of this study can serve as a useful starting point for a much larger study. For greater validity and generalizaton, further research seems necessary. Infromation generated in this area could prove to be helpful to both pre-service and in-sevice teachers of Bangaldesh. William Glasser (1969) has stated in his book "Schools Without Failure" that lack of success in schools result in children becoming loonely, delinquent, worthless

and coming to feel they are not loved. They are separated from the world of the successful by a thick wall. Perhaps this thick wall for school learners of Bangladesh is the 'school system' with some inefficient teachers who do not expect them to do well, who thus help them to experience a low self-concept, who may squelch their cerativity and finally produce academic failure. As suggested by Beaird (1965), if low self-concept can be identified and found to be related to academic achievement during the early elementary years, then attempts can be made to enhance the individual's self-concept. This may alter his/her attitude to education before he/she becomes a potential failure or dropout. More and more opportunity should also be provided for the children with creative potential so that even if they face failure in the academic field, they will at least experience some sort of success and recognition for creative endeavour. This experience will help in the development of positive self- concept and will prevent them from the thought of being worthless. These creative students will eventually start feeling that with this rare quality i.e creative potential, they can make some positive contribution to the society.

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VII

Studies on Psychological Testing and Measurement

1. **Mir Fakhruzzaman** : Factors Related to Test Pereformance : A Longitudinal Analysis.

2. **Hamida Akhtar Begum and Ishrat Perween** : Development of a Bengali Version of Cassel's Test of Social Insight.

3. **Qazi Shamsuddin, Md Ilyas and Sultana S. Zaman.** : Development of a Scale for Female Role Perception.

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FACTORS RELATED TO TEST PERFORMANCE : A LONGITUDINAL ANALYSIS *

Mir Fakhruzzaman

In psychometrics, there has long been a concern over changes in test performance over extended periods of time. Most notably, this general issue has been discussed with reference to intellingence tests, with occasional attempts made to interpret differences in scores among age groups as incdicative of changes in intelligence. More particularly, the frequently found decline in scores with increasing age during adulthood has been iterpreted by some writers as evidence of decline in intellectual ability with age. However, this inerpletation is controversial, for in sereral respects the findings which support it are equivocal. First of all, the age at onset of this apparent decline in abilities seems to depend on at least two classes of factors, the background or experiential history of the invdividuals tested and characteristics of the tests. For various combinations of historical conditions and test characteristics, various age trends have been reported; some of these trends show a rise in score throughout the life time, and others a rise followed by a leveling-off, but with no decline. Another controversial feature involves the methodology used; much of the relevant research has been cross-sectional in design, yielding group differnces which can only tenuously be interprered as reflecting change. A

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* This was submitted and approved as a doctoral dissertation at the State University os IOWA, Iowa city, Oowa, The author is deeply indebted to Dr. M. H. Segall, Professor Harold P. Bechtoldt and Dr. Woodrow W. Morris for their kind help and guidance.

From *Bangladesh Journal of Psychology*, 1972, Vol. 1, pp. 1-27
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major difficulty in interpreting differences in test scores across age groups as changes in abilities or skills with age is that such differences may arise from other variables than age; they might merely reflect differences that have always existed between the groups compared.

Many studies were conducted specifically for the purpose of comparing test scores of older subjects with those of younger subjects. Willoughby (1927), Miles and Miles (1932), Jones and Conrad (1933), Cattell (1936), Sorenson (1938), Friend ans Zubek (1938) and Bromely (1956) conducted cross-sectional studies for the purpose, With differences in details, they all point to an apparent decline in ability from young adulthood through old age.

Objections have been raised against this notion of decline of ability with age on grounds of (1) speed factor involved in testing intelligence (Lorge, 1936), (2) educational level and facilities involved and (3) difference in pattern of test scores between older Ss and younger Ss.

The most important criticism against the notion of the decline of intellignce with age is in terms of the methodology used in many so called comparative studies of intelligence of older and younger Ss. To study the growth and decline of the ill-defined concept of intelligence, via cross-sectional research, may add confusion to its understanding. As Kuhlen has commented, "unless the sampling is so precise that the younger may fairly be assumed to be what the older ones are, cultural changes may well be mistaken for age changes". Moreover, at different age levels somewhat different methods are used to locate and motivate Ss. Use of the same method in all age levels may lead to non-comparable sampes. Even if we try to match the groups in terms of age, we cannot have Ss with the same educational backgrounds ; because we shall

have to bear in mind that matching for school years does not account for schooing quality. Thus it is contended that cross sectional sampling is unlikely to result in truly comparable groups and hence the decline of intelligence, defined either by the same test performance or by different test performances, with age found by many psychologists with such samples is spurious. The only remedy is the use of the longitudinal method in order to have comparable groups. There are weaknesses in the longitudinal method as regularly employed. The longitudinal method has its own disadvantages. Retesting adults when they are 33 or 34 years of age poses problems. Locating the people who took the initial tests 16 or 17 years ago is not an easy job. Even when they are located, it is difficult to get their cooperation in taking the tests. They are not a captive audience as are college sophomores. It is possible that only the brighter individuals might agree to cooperate; if that happens, the sample will obviously be a biased one. Another problem concerns motivation. When adult Ss come to take the tests, how seriously they take the tests is a matter of concern. Under the heading Procedure, I will discuss some of the steps taken to overcome these difficulties. But in spite of these weaknesses, as Anastasi puts it, the question of age changes in adult performances is potentially better answered by a longitudinal approach.

The longitudial approach to this problem has been gaining ground and data regarding changes in test performance from adolescence to adulthood are gradually becoming available. Bayley and Oden (1955), in comparing retest (California Mental Scale) scores earned after an interval of approxiately 12 years by a groups of intellectually superior adults, found that there was a highly significant increase in scores at the second testing, both

by the Gifted Study (these were 768 Ss selected as children, by Terman, for inclusion in the in Stanford Study of Gifted Children), and by their husbands and wives. On the basis of this study Bayley and Oden concluded that "intelligence of the type tested by the Concept Mastery Scale continues to increase at least through 50 years of age".

Owens (1953) carried on another longitudinal study with a sample of college students. The main purpose of Owens' study was to determine the effects of a 31-year age increment upon the 8 subtest scores in the total score of Army Alpha, Form 6 (these students took their first tests in 1919 and were retested in 1950; average age of these students at the time of initial testing was 19 years and at the time of retesting 50 years) upon "the mental functions" measured by the 8 subtest scores, and by the total score, of the Army Alpha, Form 6. Owens did not find any decrease in score on any subtest. On the contrary, he found significant increase in scores on the Practical Judgement, Synonym-Antonym, Disarranged Sentences, and the Information subtests.

In view of the paucity of information regarding long-term changes in performance on tests of skills and/or ability*, it seemed worthwhile to attempt a longitudinal analysis of changes in scores on selected parts of the Iowa Tests of Educational Development (ITED), a standardized achievement test for which test records of many years running were availabe. Specifically, the author was able to secure complete records of 1974 performance on the several subtests of the ITED by high school seniors in

* Skills or ability will be viewed in the present discussion as traits which are defined by what an individual actually does on a given task. The task together with the method of appraising it, which defines an avility will be called a test.

Cedar Rapids and Davenport, Iowa. For the present study, three of those subtests were chosen (description of the subtests and the rationale for their choice will be discussed later). Efforts were then made to locate all members of these two groups in order to administer as many of them as possible these same three subtests. With 1947 and 1964 scores thus available for comaprison, a longitudinal analysis became possible.

Although the main concern of the present study was to compare 1964 scores with 1947 scores obtained by the same subjects over the three subtests, time lapse per se was not considered to constitute an explanation of whatever changes might occur in test scores. For this purpose, observations were obtained on the statistical relationships among both sets of scores, changes in scores, various individual characteristics, and selected educational and occupational experiences of the individuals who took the tests.

It is possible that individuals of different general levels of ability might manifest different changes in performance over time on tests of this nature. 1947 scores might well reflect an index of initial level of ability and a relationship between 1947 scores and 1964 scores is worth noting. As another estimate of differences in initial performance level, high school grade point average, a score which is a relatively stable reflection of academic performance over a four-year period, can be employed.

An individual characteristic that may contribute to change in test scores is the amount of education received during the period intervening between the two test administrations. Another characteristic may be the kind of attitude a person had at the time of the second administration, and also during the intervening years,

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towards activities related to the skills measured by the tests in question.

Other kinds of experiences a person has had since he took the tests may well relate to changes in test score. In this connection, potential relationships among occupation, kinds of leisure time activities engaged in, reading habits, and the test scores will be investigated as potential explanatory variables.

Method and Procedure

As mentioned earlier, because of the paucity of longitudianl analyses of test performance and also because of the opportunity to investigate potential predictions of change in performance, it was decided to employ the longitudinal method in the present study. The core of the study was a readministration of three subtests of the ITED to Ss who had taken the ITED in the first semester of the 1947-48 academic year. Two administrations are thus separated by approximately 17 years. Average age of the Ss at the time of the initial test was approximately 17.5 years; they were approximately 34 when retested.

Instruments

1 : Tests of ability

Of the nine batteries of the Iowa Tests of Educational Development (ITED), three subtests were selected for readministration. The subtests chosen were (1) Ability to Do Quantitative Thinking : (2) Ability to Interpret Reading Materials in the Natural Sciences, and (3) General Vocabulary. These tests were selected on the grounds that

they would represent different skills, would be relatively independent of each other, and would measure skills not entirely dependent upon schooling. Of these three subtests, two (Ability to Do Quantitative Thinking and Ability to Interpret Reading Materials in Natural Sciences) were not given in their full length version because of time pressure. These tests were reduced to half their lengths by taking every other item in the first one, and by taking every other pasage in the second test. Split-half reiliability of these tests being .93 and .92 respectively and the estimated correlation for the reduced length with the full length version being .87, we considered it feasible to take such a step. General Vocabulary was given in its full lingth. To provide values comparable in magnitude to the full length scales, the initial repeated reliabilites were assumed to be comparable to the values that would have been obtained for the retest data. From this assumption, the full scale values were estimated as 1.90 of the half scale values. The repeated 1964 statistics for tests (1) and (2) were, therefore, based on the proportional adjusment.

II : Attitude scale

For assessing attitude towards intellectual activity, an attitude scale towards intellectual activity was constructe. The following steps taken to construct the said scale :

(1) The author constructed 25 Likert format attitude items relevant to a concern with "Intellectual" matters. Care was taken to make the items clear and unambiguous.

(2) These items pretested on a sample of 170 undergradutes at the State University of Iowa enrolled in an Introductory Social Psychology. Course. A 5-point response scale (Strongly Disagree, Somewhat

Disagree, I don't know, Somewhat Agree, Strongly Agree) was employed.

(3) To enable the detection of, and to reduce the possible bias of, a general response set, the items were worded both positively and negatively.

(4) Responses were scored arbitrarily (after Likert) as 5,4,3,2,1 for the negatively worded items and 1,2,3,4,5 for the positively-worded items.

(5) The items were then subjected to analysis to see whether they scale and/or discriminate (modified scalogram analysis for scalability and tests between high scorers and low scorers for discriminability).

(6) Eleven items were eliminated on the bases of lack of scalability, lack of discriminability, high rate of no response, redundance (two or more items measuring almost alike), etc.

III: Personal data sheet

As indicated in the introduction, the author wanted to study the ralationship between the changes in test scores and other individual and social changes of the subjects. These individual and social characteristics were defined by the Ss' respones to items on a personal data sheet administered with the retest materials. The subjects were requested to give information, among other things, about their occupations, educational level, and to make ratings of the extent to which they engaged in various kinds of activities, such as reading, writing, passive sports, active sports, etc. Coding of these variables was done as follows.

1a. Occupation : Occupations mentioned in the personal data sheet by this Ss were coded according to the catergory system as employed by the United States Bureau

of the Census, 1950 (U.S. Bureau of the Census, Vol. 2, Part 1, Washington D. C., 1950) with slight modifications. Since there were no unskilled farmers in the samples of the present study, this category was not used. And also, the order of the scale was reversed for the purpose of the analysis of the data of the present study. Whereas smaller numbers in the Census catergory system indicate higher occupational levels, in the context of the present study reverse is the case. Moreover, code 0 was replaced by 9. With these modifications, the occupations were coded as. follows :

9 - Professional and technical occupations
8 - Farm owners ans farm managers
7 - Managers and proprietors
6 - Clerical workers
5 - Sales workers
4 - Craftsmen and kindred workers
3 - Operatives and kindred workers
2 - Service workers
1 - Non-farm labourers

1b. Females were first categorized in terms of "working" "not-working".

1- Working
2 - Not-Working

For the working females the same coding system as under la. was followed.

2 Education :

1 - High School only
2 - Other training, not in college or university
3 - Had some college work
4 - College graduates
5 - Graduate and other advanced training

Kinds of activities : Three categories of Ss' responses were defined ; reading, writing, and research were catergorized as intellectual activity, watching TV, and passive sports as pleasure activity, and active sports of various kinds as active sports. Ss made their ratings of each of these three kinds of activity according to the following scale :

1 - Very frequently

2 - Frequently

3 - Occasionally

4 - Seldom

5 - Never

4. Grade point average : High school grade point average was secured through the cooperation of the principals concerned from the permanent records of the students in question. Grade point average is the cumulative grade point average of the subjects beginning with their high school freshman year and ending with their senior year. Letter grades were converted into numbers according to a 4.0 scale, 1 indicationg D ; 2, C ; 3, B and 4 indicating A.

Procedure

Subjects : 202 subjects constituted the sample from a finite population[1] of 1,112 seniors who took the ITED in the Fall of 1947-48 from Cedar Rapids and Davenport high schools. Six cases had to be discarded (from Davenport) because of improper anministration of the tests. The sample, therefore, was 17.6% of the total population. This sample was, by reason of the method of selection, a

1 Since the finite population was as large as 1,112, no special statistic for the finite population was used.

sample of those students who remained in the two cities 16 or 17 years.

In order to motivate the subjects to do well in the tests, they were told, after they had responded to the attitude scale, and before they had taken the three subtests of the ITED, that the author's hypothesis was that certain skills of abilities would not decline simply because of the process of aging. In order that the author could adequately analyze his data they (the subjects) were told that they should take the tests as seriously as they took them as high school seniors. The way the subjects worked on the tests convinced the author that they really took the tests seriously.

The subjects could finish the tests during the time specfied. Only a few subjects skipped items on the tests. It can be assumed that the speed of performance component was not a relevant factor in these test-retest comparisons.

Description of Statistical Analyses of Data*

A standard Type 1 design (Lindquist, 1953) was employed for the analysis of variance. One of the assumptions of a Type 1 design, it may be noted, is the constancy of the variances and of the covariances in the variance-convariance matrix of the repeated measures. In cases where this assumption was violated, the Greenhouse-Geisser (1959) reduction in the degrees of freedom was empoyed as an overly conservative test. In the analysis, the homogeneity, over groups, of the within-group variance-covariance matrices and of the mean vectors (Winer, 1962) were also obtained; these

* Analyses were Programmed by Dr. Harold P. Bechtoldt for the purpose of processing the data in the IBM 7040.

multivatriate statistics represented supplementary analyses of the data.

For the regression analyses, multiple correlation coefficents and beta weights were computed from the several appropriate correlation matrices. In the analysis, predictors wiht non-significant beta weights were successively eliminated by employing a series of F tests at the .05 level. The set of variables whose beta weights were all significant at the .05 level were designated the "Best prdictors" in the regression summary Tables. In these Tables, under the heading "Order of Eliminatig Predictors" the set of perdictors with nonsignificant beta weights are shown in the order, from left to right, in which they were eliminated. Under the heading "Best Predictors" under each predictor its beta weight is given in parentheses.

Because the predictor variables 2 through 6 were so scaled that smaller number meant more of having or doing something, correlations of these variables with the rest of the variables, and their beta weights would be multiplied by -1.0 to make the relationships and the beta weights consistent with the general interpretation of positive relationships.

Results

Two questons the primary focus of this study. The first deals with the direction and magnitude of changes in performance on the three tests administered 17 years following their first administration. The second question deals with the characteristics of the verbal performance of the individuals and of their experiences, and their

relationship of these characteristics to the subjects' test performance. The investigation of these two questions involves consideration of number o subsidiary questions.

The first of these subsidiary questions concerns the nature of the sample secured. An important consideration in a study of this nature is the representativeness of the samples secured. The degree of representativeness may be inferred from a comparision of the 1947 test scores of the sample the 1947 test scores of the population of which the sample subjects were a part. Means and variances of 1947 scores of both the samples and the populations are shown in Table 1.

A comparison between the samples and populations indicates that the samples and populations do not differ in the means and variances of the three 1947 test.

Table IA

Means and Standard Deviations of 1947 scores on Three Tests for Samples and Populations

	Cedar Rapids		Davenport	
	Sample	Populations	Sample	Population
		QUANTITATIVE THINKING		
Mean	14.686	14.968	15.734	15.500
SD	5.997	6.263	5.700	5.810
		Natural Science		
Mean	17.441	17.129	16.532	16.500
SD	4.860	6.292	5.020	5.750
		Vocabulary		
Mean	19.225	18.146	17.936	17.000
SD	4.420	4.730	3.669	4.120

Table IB

Test for the Difference of the Sample and Population-minus-Sample Means by City and Tests

		t
Cedar Rapids Quantitative Thinking	:	1.876
Davenport Quantitative Thinking	:	1.884
Cedar Rapids Natural Science	:	.093
Davenport Natural Science	:	1.575
Cedar Rapids Vocabulary	:	1.858
Davenport Vocabulary	:	1.779

t's in all cases are not significant.

Another related question is the comparability of characteristics across samples in the two cities. It has already been shown that in terms of the 1947 means and variances of the three tests, samples from the two cities are quite comparable. Samples from the two cities are also comparable in terms of another 1947 charctetistic namely, high school grade point average. This is shown in Table ll.

It may be seen in Table ll that the sample grade point averges are virtually identical across this, that in both cities, the average femallye grade point average is higher than the average male grade point average, and the magnitudes of maleand female grade point averages are virtually the same in both cities.

Another subsidiary question that we may ask is whether samples in the cities differ in overall average performance on six tests (the three tests repeated and also whether males differ from the females in their perfomance on these tests. Two Type I analyses of variance (Lindquist, 1953), using unweighted means (which assumes equal

number of cases), provided the overall statistical test. Summaries of means and variances of the test scores of

Table II

High Shcool grade point average of the Ss

	Cedar Rapids		Davenport	
	Male	Felmale	Male	Female
N	53	49	47	47
Mean	2.149	2.562	2.157	2.432
SD	0.581	0.525	0.597	0.621

Cedar Rapids : N=102
Davenport : N=94

the Ss in each are given in Table III and of each sex in Table IV. Summaries of the relevant analyses of variance are given in Table V and Table VI. Also reported in the Table are chi-^{2} and F values for the tests of the hypotheses of the constancy of varinace and of covarince in the variance-covarince matrices and of the homogeneity of mean vectors respectively.

Table III

Means and variances of three tests reperated by city

Quantitative	Thinking		Natural Science		Vocabulary	
	1947	1964	1947	1964	1947	1964
Cedar Rapids						
Mean	14.686	17.686	17.441	20.529	19.225	23.03
Variance	35.960	41.821	23.615	23.380	19.543	8.137
Devenport						
Mean	15.734	18.202	16.532	19.085	17.936	22.596
Variance	32.391	45.926	25.198	34.100	13.458	7.469

F values for testing homogenetity of mean vectors : Observed F = 3.308
F .05 with 6 and 189 degrees of freedom = 2.090
Chi-^{2} values for testing constancy of variance-covariance :
Observed Chi-^{2} = 442.799
Chi-^{2} .05 with 19 df = 30.144

Table IV

Means and variances of three tests reperated by sex

	Quantitative Thinking		Natural Science		Vocabulary	
	1947	1964	1947	1964	1947	1964
Male						
Mean	16.830	20.780	16.870	21.010	18.250	22.960
Variance	35.718	31.406	30.033	27.970	17.927	7.373
Female						
Mean	13.479	14.969	17.146	18.615	18.979	22.687
Variance	27.494	39.420	18.863	29.334	15.852	8.342

F values for testing homogeneity of mean Vectors : Observed F = 12.983

F.05 with 6 and 189 degrees of freedom = 2.090

Chi-^{2} values for testing constancy of variance-covariance :

Observed Chi-^{2} = 362.06

Chi-^{2} .05 with 19 df = 30.144

Table V

Analysis of variance of three tests repeated by city

Source	df	ms	F
Between-subjects	195		
Groups	1	51.904	0.529
error (b)	194	98.156	
Within-subjects	980		
Tests	5	1321.137	113.384
City X tests	5	49.649	4.261
Error (W)	970	11.652	
Total	1175		

F .05 with a and 194 degrees of freedom = 3.84*

Table VI

Analysis of variance of three tests repeated by sex

Source	df	ms	F
Between-subjects	195		
Groups	1	955.585	10.232
error (b)	194	93.493	
Within-subjects	980		
Tests	5	1341.096	130.233
Groups X Tests	5	312.378	30.335
error (W)	970	10.989	
Total	1175		

F .05 With 1 and 194 degrees of freedom- 3.84*

The first analysis indicates that there is no difference in overall means across the two cities. However, significant interaction between tests and cities indicates that differences across tests in the two cities are different and also, the test for the hypothesis of the homogeneity of means vectors in not tenable which indicates that there is a differential shift in mean scores across the cities. Table VI indicates a significant sex difference; there is also a significant interaction between sex and tests which suggests that differences among test score means are different across the two sexes. A major implication of these two analyses of variance is that we cannot analyze our

* Since the assumption of the constancy of the variance and of the covariance in the variance-covariance matrices was not satisfied the Greenhous-Geisser reduction in the degrees of freedom (1, 194) was used.

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data utilizing the sample as a unit. Cities and sexes must henceforth be treated separately. Also, significant F values for the tests in both analyses imply that test scores for the three tests shall also have to be analyzed separately.

Having done these preliminary analyses, we now come to ask our first major question. Are there significant differences between 1947 and 1964 test performances and if so, in what direction ? Table VII gives means and variances of the three test scores for each city and sex separately. Table VII persents some interesting data. If we consider the variances we find that, in general, there is an increase in variance from 1947 to 1964 in the case of the Quantitative Thinking and Natural Science scores, for all sub-groups except Cedar Rapids males. But in General Vocabulary, there is a sharp decrease in variance in all groups. The implication of this interesting set of data will be discussed later.

Table VII

Mean and variances of the three tests (each repeated) given Separately by city and sex

	Quantitative Thinking		Natural Science		Vocabulary	
	1947	1964	1947	1964	1947	1964
Cedar Rapids						
Male Mean	16.264	21.094	17.075	21.698	18.755	23.189
Variance	36.967	21.741	35.687	26.599	20.381	7.887
Female Mean	12.980	14.000	17.837	19.265	19.735	22.876
Variance	29.895	37.750	10.723	21.449	18.532	8.526
Davenport						
Male Mean	17.468	20.426	16.638	20.234	17.681	22.702
Variance	34.298	42.772	24.192	28.966	14.918	6.822
Female Mean	14.000	15.979	16.426	17.936	18.191	22.489
Variance	25.043	39.978	26.728	37.278	12.158	8.255

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Table VIII presents the summary of the relevant analyses of variance. Results of the analyses indicate that in all the three tests, there is a significant increase in test scores from 1947 to 1964. In a striking fashion, then, these data indicate that there is no decline in skills measured by these three tests over the particular 17 year period. Tests X Groups interaction suggests that for both 1947 and 1964 tests, differerences among score means are different among the four groups. The implication of this significant interaction will be discussed later.

Table VIIIA

Analysis of variance of 1947 and 1964 qt scores by city and sex

Source	df	ms	F
Between-subjects	195		
Groups	3	719.437	12.406
error(b)	192	57.991	
Within-subjects	196		
Tests	1	710.962	80.218
Tests X Groups	3	64.729	7.303
error(w)	192	8.863	
Total	391		

F.05 with 1 and 192 degrees of freedom- = 3.84*

F.05 with 3 and 192 degrees of freedom = 2.60

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Table VIIIB

Analysis of variance of 1947 and 1964 qt scores by city and sex

Source	df	ms	F
Between-subjects	195		
Groups	3	80.939	1.778
error(b)	192	45.531	
Within-subjects	196		
Tests	1	760.682	102.079
Tests X groups	3	61.087	8.198
error(w)	192	7.452	
Total	391		

F.05 with 1 and 192 degrees of freedom = 3.84*

F.05 with 3 and 192 degrees of freedom = 2.60

Table VIIIC

Analysis of Variance of 1947 and 1964 Voc. Scores by City and Sex

Source	df	ms	F
Between-subjects	195		
Groups	3	27.019	1.265
error(b)	192	21.354	
Within-subjects	196		
Tests	1	1744.329	550.919
Tests X gorups	3	5.104	4.770
Error (w)	192	3.166	
Total	391		

F.05 with 1 and 192 degrees of freedom = 3.84*

F.05 with 3 and 192 degrees of freedom = 2.60

* Since the assumption of the constancy of the variance and of the covariance in the variance-covariance matrices was not satisfied, the Greenhouse-Geisser reduction in the degrees of freedom (1, 192) was used.

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We may now ask our second major question, concerning the factors that may account for these changes in test scores. The variables chosen for analysis were defined and discussed earlier. Table IX presents the predictors considered with their means and standard deviations. Except in the case of GPA, numbers were arbitrarily assigned to the categories for each of these variables. For predictors 2 to 6, smaller numbers indicate having or doing more of what is involved in the predictors; for predictors 1, 7, and 8, the ordering is reversed. The number of cases assigned to each category for each of these variables is shown in Table X.

Table IX

Means and standard Deviations of the predictors considered

	Mean	SD
P1. Education (Educ.)	2.175	1.359
P2 Amount of Intellectual activity (Int. Act.)	2.929	0.876
P3. Amount of Pleasure Activity (Pleas. Act.)	2.330	0.802
P4. Amount of Active Sports (Act. Sport)	2.541	1.273
P5. Newspaper Reading (Newspaper)	1.619	0.641
P6. Reading of serious books (Reading Books)	3.418	1.234
P7. High School Grade Point Average (GPA)	2.334	0.624
P8. Attitude Score Towards Intellectual Activity (Attitude)	3.810	0.508

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Table X

Frequency Distribution by Categories of the predictors

Education (P1)		Intellectual Activity (P2)		Pleasure Activity (P3)	
Low	1-103	High	1-09	High	1-28
	2-06		2-51		2-86
	3-44		3-81		3-70
	4-33		4-47		4-10
High	5-10	Low	5-06	Low	5-02
	196		196		196
Active Sports (P4)		Newspaper (P5)		Readign Books (P6)	
High	1-52	High	1-90	High	1-13
	2-43		2-90		2-29
	3-50		3-15		3-75
	4-34		4-01		4-21
Low	5-17	Low	5-00	Low	5-58
	196		196		196
GPA(P7)			Attitude Score (P8)		
Low	1.00-1.99 : 68		Low	2.07-3.49 : 46	
	2.00-2.99 : 97			3.50-3.99 : 73	
High	3.00-3.96 : 31		High	4.00-4.86 : 77	
	196			196	

Table XI presents the correlation matrix and the multiple correlations for the predictors. Since the "rank" of the matrix of independent (predictor) variables was in every case equal to the number of variables and since the inverese of this matrix existed, the predictors were shown to be linearly independent of each other. They were not uncorrelated (or orthogonal) since some of the

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correlations between the predictor variables were significantly (.05) different from zero.

Table XI
Correlation Matrix showing Inter-correlations Among Predictors
(N-196)

	P1	P2	P3	P4	P5	P6	P7	P8
P1	1.00	.154	.079	.001	.154	.161	.333	.245
P2	.154	1.00	.076	.091	.235	.500	.213	.381
P3	.079	.076	1.00	.194	.024	.113	.014	.119
P4	.001	.091	.194	1.00	.051	.047	.136	.014
P5	.154	.235	.024	.051	1.00	.188	.185	.418
P6	.161	.550	.113	.047	.188	1.00	.185	.418
P7	.333	.213	.014	.136	.089	.185	1.00	.229
P8	.245	.381	.119	.014	.339	.418	.229	1.000

R from (N-1) Predictors

	P1	P2	P3	P4	P5	P6	P7	P8
R:	.354	.550	.263	.278	.377	.555	.410	.545

The next task, therefore, consists of a multiple regression analysis with all the predictors and nine dependent variables (6 scores, based on three tests repeated, and 3 gain scores). The purpose of this analysis is to determine multiple correlations of the nine dependent variables and eight predictors, and the beta weights of the predictors, and to find out the best predictors in terms of significant (.05) beta weights. Table XII presents the final results of this analysis.

The net results of this analysis points to the fact that Education, GPA, and Attitude Scores are the best

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predictors of the nine dependent variables; next in order of importance as the predictors are the Amount of Intellectural Activity, and Reading of Serious Books. Significance of this finding will be discussed later.

Table XII

Multiple Correlations of eight predictors and nine dependent variables[1]

Dep. Var.	Groups	R with P's 1-8	Order of eliminating P's	Final R for reduced set	Best Predictor
D1	G1	.6002	P2,3,5,4,6,8	.5860	Educ. and GPa (.491) (.166)
	G3	.6462	P6,2,3,4,5,8	.6091	GPA and Educ. (.383) (.310)
	G2	.6828	P4,6,2,5,3,1	.6444	GPa and Attitude (.544) (.273)
	G4	.5808	P1,4,6,3,5,8,	.5180	GPA and Int. Act. (.533) (.152)
D2	G1	.6804	P4,5,6,8,2,1	.6316	GPA and Pleas. Act. (.533) (.198)
	G3	.6544	P4,1,3,2,5,6	.6247	GPA and Attitude (.494) (.280)
	G2	.6805	P3,2,4,1,5,6	.6039	GPA and Attitude (.562) (.152)
	G4	.7054	P4,1,6,3,5,2	.6276	GPA and Attitude (.466) (.283)
D3	G1	.6093	P4,5,2,6,8,1	.5022	GPA and Pleas. Act. (-.462) (-.335)
	G3	.5943	P3,2,8,,4,7,6	.4774	Educ. and Newspaper (.450) (-.390)
	G2	.4234	R is not significant		
	G4	.1626	R is not significant		

1 Predictors have identificantion numbers as in Table IX. Dependent variables and groups will have identification numbers as follows :

D1 : 1964 Quantitative Thinking Scores ; D2 : 1947 Quantitative Thinking Scores ; D3 : Quantitiative Thinking gain Scores ; D4 : 1964 NS (comprehension) Scores ; D5 : 1947 NS (comprehension) Scores ; D6 : NS (comprehension) Gain Scores ; D7 : 1964 Vocabulary Scores ; D8 : 1947 Vocabulary Scores ; D6 : Vocabulary gain Scores.

G1 : Cedar Rapids male (N=53); G2 : Cedar Rapids female (N=49) G3 : Davenport male (N=47); and G4 : Davenport female (N=47).

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Table XII
(Continued)

Dep. Var.	Groups	R with P's 1-8	Order of eliminating P's	Final R for reduced set	Best Predictor
D4	G1	.7393	P6,8,4,3,5,2	.6597	GPA and Educ. (.508) (.298)
	G3	.7124	P3,6,5,1,2	.6690	GPA, Attitude, sports (.463) (.307) (.238)
	G2	.6497	P4,1,5,3,6,2	.6545	GPA and Attitude (.444) (.348)
	G4	.6918	P3,6,4,5,2,8	.6545	GPA and Educ. (.509) (.224)
D5	G1	.7829	P3,6,8,5,2	.7561	GPA, Int. Act. Educ. (.438) (.304) (340)
	G3	.5528	R is not significant		
	G2	.6734	P5,1,3,6,2,4	.6422	GPA and Attitude (.830) (.416)
	G4	.6429	P5,2,6,3,4,7	.5902	Attitude and Educ. (.368) (.361)
D6	G1	.6429	R is not significant		
	G3	.4086	R is not significant		
	G2	.3703	R is not significant		
	G4	.3732	R is not significant		
D7	G1	.6842	P2,5,4,6,3	.6752	Educ. GPA, Attitude (.345) (.319) (.278)
	G3	.7354	P3,6,5,4,2,1	.6747	GPA and Attitude (.440) (.415)
	G2	.6895	P3,4,6,5,8	.6417	Int.Act., Attitude, Educ (.370) (.354) (.263)
	G4	.7786	P5,2,4,3,6,1	.7381	GPA and Attitude (466) (.426)
D8	G1	.6598	P4,2,6,5,1,3	.6026	GPA and Attitude (.537) (.277)
	G3	.7500	P1, 5,4,3,2,6	.7081	GPA and Attitude (.481)(.415)
	G2	.6018	P5,3,6,2,4,1	.5249	GPA and Attitude (.413) (.268)
	G4	.7702	P6,3,4,5,1,2	.6923	GPA and Attitude (.528) (.294)
D9	G1	.5562	P1,4,2,6,5,8	.4790	GPA and Pleas. Act. (.444) (.312)
	G3	.5742	P2,4,5,3,1,8	.4837	GPA and Int. Act. (-.318) (-.397)
	G2	.3677	R is not significant		
	G4	.4542	R is not significant		

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On the basis of the findings of Table XII, it was decided to employ the best predictors as discussed in the preceding paragraph for further analysis including the one presented in Table XIII. Considering the high correlations between the 1947 and the 1964 test scores, the 1947 test scores were also used as the predictor variables for the analysis of the data in Table XIII.

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Table XIII

Multiple Correlations of Eight Predictors and Three Dependent Variables [1]

Dep. Var.	Group	R with P's 1-8	Order of eliminating variables	Final R with reduced set	Best Predictors.
D1	G1	.7630	P2,8,7,6,11,12	.7159	'47 QT and Educ. (.467) (.378)
	G3	.8697	P11,7,2,6,8,12	.8597	'47 QT and Educ. (.744) (.230)
	G2	.8010	P2,8,1,12,6,7	.7622	'47 QT and '47 NS (.587) (.281)
	G4	.8058	P6,2,1,7,11,8	.7985	'47 QT and '47 Voc. (.719) (.107)
D4	G1	.8099	P8,3,4,2,1,6	.7884	'47 NS and GPA (.578) (.289)
	G3	.8278	P8,4,3,1,2,7	.8050	'47 NS and '47 Voc (.406) (.501)
	G2	.8162	P7,3,2,8,1,6	.7841	'47 NS and '47 QT (.626) (.256)
	G4	.8450	P2,3,6,8,1,7	.8221	'47 NS and '14 of QT (.485) (.452)
D7	G1	.8309	P2,3,7,4,5,8	.8197	'47 Voc. and Educ. (.650) (.290)
	G3	.8794	P7,8,4,2,3,5	.8637	'47 Voc. and Educ. (.763) (.185)
	G2	.8810	P4,5,3,7,1,8	.8678	'47 Voc. and Int. Act (.778) (.229)
	G4	.8264	P5,2,3,7,4,1	.7761	'47 Voc. and Attitude (.567) (.321)

Analysis in Table XIII presents an interesting but reasonable picture. Education, GP, And Attitude, though

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[1] Predictors are : P12,6,7, and 8 as in Table IX and P'10 : '47 Quantitaive Thinking
P'11 : '47 Natural Science
P'12 : '47 Vocabulary
Dependentv ariables are D1, D4, and D7 as in Table XII.

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somewhat important, are not best predictors for the 1964 test scores. Inclusion of 1947 test scores as predictors enhances the multiple correlation coefficient. And the 1949 test scores emerge out as the best predictor for the 1964 test scores. Attitude, GPA, and Education are next in importance as predictors.

In the immediately preceding analysis we did not use occupation as a predictor since the sample contains a large number of women who are not gainfully employed. However, we performed another multiple regression analysis of the 1964 test scores with occupation included. This analysis involved only 100 males in the sample. The analysis demonstrates that occupation is an important predictor for the 1964 Natural Sciences scores. and also to some extent for the 1964 Quantitative Thinking scores (See Table XIV).

Table XIV

Multiple correlations of the Nine Predictors[1] and the Three Dependent Variables

Dep. Var.	R with P's 1-8	Order of Eliminating P's	Final R for reduced set	Best Predictors
D1	.7856	P8,P'12,P7,2,3, P'11 and P8	.7649	'47 QT and Euc. (.599) (.296)
D4	.8202	P3,2,P'10,P9	.8175	'47NS, '47 Voc, Occ. GPA (.430) (.285) (.188) (.154)
D7	.8526	P7,2,3,P'10. P'11,P9 and P8	.8366	'47 Voc. and Educ. (.701) (.244)

1 Predictors include eight predictors as in Table XII plus Occupation (P9); dependent variables are the same as in Table XIII.

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Though attitude score emerged as a good predictor of 1947 and 1964 test performance, attempt was made to see whether attitude score could be predicted from other predictor variables. Multiple correlation coefficients were computed for attitude score as a dependent variable and seven predictor variables. Results are present in Table XV. This Table also shows the multiple correlations involving the 1964 test scores and the seven predictor variables.

Table XV

Multiple Correlations of Seven Predictors and Four Dependent Variables [1]

Dep. Var.	R with P's 1-8	Order of Eliminating P's	Final R for reduced set	Best Predictors
D1	.7849	P'12, P2, P'11, P3,7	.7759	'47 QT and Educ. (.679) (.195)
D4	.7836	P3, 2, 7	.7820	'47NS,'47QT,GPA & Educ. (.359)(.279) (.224) (.100) (.125)
D7	.8270	P7, P'11, P3, P'10	.8237	'47Voc. Educ.&Int.Act (.680) (.218) (.125)
D'10	.5467	P'10 ,P1, 7, P'11	.5297	'47Voc. Books & Int.Act (.316) (.220) (.186)

1 predictors include Education (P1). Intellectual Activity (P2). Reading Serious Books (P3), GPA (P7), and three 1947 test scores (P'10, 11, 12); Dependent variables are three 1964 test scores and attitude scores (D'10).

Since, in general, Education, GPA, and Attitude seem to be the best predictors, multiple correlation coefficients were computed for the nine dependent variables and Education, GPA, And Attitude Score. Table XVI presents the results.

Table XXI also indicates a comparative evaluation of the prediction of the dependent variables by 8 predictors and by 3 predictors. It may be noted that except in case of gain scores, 3 predictors (Education, GPA, And Attitude) predict the dependent variables as well as do the eight predictors. It may also be noted that multiple correlation coefficient for predicting gain scores was not significant in many cases even while eight predictors were employed. It probably indicates that it is hard to predict gain scores. This comparison further demonstrates the predictive value of Education, GPA, and Attitude Towards Intellectual Activity.

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Table XVI

Multiple correlation Coefficients for Eight Predictors and nine Dependent Variables and of Three Predictors and nine Dependent Variables.

Dependent Variables	Groups	R with P's 1-8	R with P's 1, 7, and 8
D1	G1	.6002	.5908
	G2	.6828	.6664
	G3	.6462	.6244
	G4	.5808	.5151
D2	G1	.6904	.6173
	G2	.6805	.6216
	G3	.6544	.6251
	G4	.7054	.6298
D3	G1	.6093	.4621
	G2	.4234	.2200
	G3	.5943	.3632
	G4	.1626	.1611
D4	G1	.7393	.7033
	G2	.6497	.6053
	G3	.7124	.6343
	G4	.6918	.6771
D5	G1	.7829	.7070
	G2	.6734	.6462
	G3	.5528	.4860
	G4	.6429	.6245
D6	G1	.3947	.1823
	G2	.3703	.2793
	G3	.4086	.3353
	G4	.3732	.3194
D7	G1	.6842	.6752
	G2	.6895	.6410
	G3	.7354	.6991
	G4	.7786	.7563
D8	G1	.6598	.6169
	G2	.6018	.5863
	G3	.7500	.7107
	G4	.7702	.7025
D9	G1	.5562	.3822
	G2	.3677	.2965
	G3	.5742	.4668
	G4	.4542	.1939

Discussion

Differences in Test Scores Over Time

Results of the present study demonstrate that there certainly is no decline in the performance on the three ITED tests after a lapse of 17 years since the subjects took the tests as high school seniors in 1947-48. The present evidence points to an increase in performance on all three tests. The magnitude of increase cannot, however, be accurately determined for two of these tests. For the tests Ability to Do Quantitative Thinking and Ability to Interpret Materials in the Natural Sciences, the 1964 test scores were defined as 1.9 times the half test scores resulting in, at best, an estimate of full test scores.

The increase in General Vocabulary scores was quite marked. This was the sub-test which was readministered in its full length, and no scores adjustment was necessary. The increase is of the magnitude of one sigma from the original mean. In the case of the other two tests, the increase is of the magnitude of one-half sigma from the original mean. These findings are quite comparable to those of Owens. Owens reported an increase of the magnitude of one-half to nine-tenths of a sigma in Army Alpha sub-tests like Practical Judgment, Synonym-Antonym, Disarranged Sentences, and Information. But, as compared to Owens' findings, we can have more confidence in our findings because of the characteristics of our sample. Owens' sample contained a disproportionate number of brighter people. Our sample may be said to be free from this bias. A comparison of the means and variances, and also of the distribution of scores between the 1947 test scores of the samples and the populations (as shown in Table 1) demonstrated an excellent comparability. The significant increase in 1964 retest performance cannot, therefore, be regarded as an

artifact of sampling bias. Also findings of the present study may be generalized to a complete high school senior class population., whereas in a study like that of Bayley and oden (1955, where all Ss were gifted children, reported gains in retest scores could not be generalized so widely. Our findings also compare well with those of Bentz (1953) who reported that subjects under 35 years of age made significant gains in ACE retest scores.

It should be remarked that many test constructors contend that certain skills or abilities, including verbal skills or abilities, decline with advancing age. Assuming that such verbal skills are similar to the skills measured by the three tests readminstered in the present study, it may be stated that decline of skills with age is not the case. Moreover, it shall be emphasised below that the process of aging per se does not constitute an adequate explanation for either an increase or decrease in such skill.

There were differences in the pattern of increase in the three tests. The largest increase occurred in General Vocabulary scores in all the groups. Recalling that this was the one test in which no reduction in length was involved, statements about the increase are made with considerable confidence. This increase in vocabulary scores is probably reliable and, as such, in not difficult to interpret. The present day society has so may ways of enriching the knowledge of words. Presumably, males and females alike read newspapers and magazines, and watch television, activities which can add to one's vocabulary. Communication facilities are better now than they were in 1947. Thus all members of the sample are expected to do relatively well on this test. This argument is supported by the sharp decline in variances in the 1964 vocabulary scores.

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The increase in variances in the other two tests may be due to two reasons. The first is a technical point. By multiplying the half-score by 1.9 to obtain 1964 scores comparable to those of 1947 we may have slightly overestimated the full length score. In that case. there would be an artifactual increase in variances. The second possible reason is a substantive point. In contrast to the situation regarding general vocabulary, these tests contain materials the subjects are less likely to have been exposed equally pervasively. There are people in the samples who were more likely to keep up in these areas than other people. If this is true, this might have resulted in a wider dispersion of scores.

The significant interaction involving tests and cities is difficult to explain. Though there is no difference in overall means between the cities, the test of the hypothesis of the homogeneity of mean vectors is not tenable ($F = 3.308$, with 6 and 189 degrees of freedom ($P<.01$). Both the test of interaction and of mean vectors indicate a differential shift in the mean scores for tests for the fwo cities. In addition, there is a general increase in variance from 1947 to 1964 for the Quantitative Thinking and Natural Science (Comprehension) test scores; but such an increase was not found for Cedar Rapids males. A part of the significant inteaction may be due to this difference in variances. We can only speculate about possible explanations for such decreased variances and shifts in the mean test scores among the Cedar Rapids males,. It may be that Cedear Rapids males are more test-oriented. There is some evidence for this. Of the Cedar Rapids males, ten subjects indicated in the Personal Data Sheet that they took some sort of intellingence test since they left high school. Only three in the rest of the sample took such test. The proximity of Cedar Rapids to campuses of Coe College and

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the State University of lowa and the emphasis on adult education may have exerted some influence on the test performances of the Cedar Rapids males. These are some of the possible factors which could not have been subjected to test in the present study.

Factors Related to Changes in Tess Performance :

It is clear that performance after a 17 year period may be predicted with a degree of success. The predictors fall in two main categories : (1) 1947 test scores, and (2) intervening experiences as reflected in responses to the subjects' personal data sheet and attitude questionnaire.

It is quite understandable that 1947 test scores correlate with 1964 test scores. In one sense, this indicates simply that the tests are reliable over a 17 year interval. The test-retest coefficients for the three tests are .753,699, and.783 respectively. Also, if the test performance reflects interests of the individuals, persons will try to keep up in the areas in which they are interested and hence maintain their original levels of performance to a considerable extent. This line of argument leads to the question of the nature of the relevant intervening experiences.

The relationship between intervening experiences reflecting habits, interests, attitudes, etc., and test performance is a complex one. Habits, interests, and attitudes of the subjects might have led them to seek experiences which are rewarding. Or, the experiences they have had might have helped keep up their interests or attitudes in those activities which are associated with such skills or abilities are measured by the three tests of the present study. In any case, kinds of experiences they have had are likely to play an important role in reflecting their

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performance on the relevant tests. But it should be remarked that such a relatiionship is probably multi-directional and no attempt has been made here to determine any causal relationship.

Although it is interesting to note that the same predictors do not predict all the dependent variables, there are some predictors which have some general applicability. Education, high school grade point average, attitude towards intellectual activities, and the three 1947 test scores were shown earlier to be the best predictors of 1964 test performance. The more educated a person is, the more possibility he has to be well placed in society and to come in contact with stimulating experiences of life. These factors might lead to greater exposure to the kinds of abilities measured by the tests in question. High school grade point average, as mentioned earlier, is a stable index of initial level of academic ability. That is predicts 1964 test performance indicates that the test are also measures of academic ability.

That attitude towards intellectual mattters emerged as a good predictor for both 1967 and 1964 test performance is, in retrospect, not suprising, since people who have placed positive values on intellectual matters are likely to be interested in and capable of performing intecllectual activities. Attitude toward intellectual activity should, therefore, relate to tests like those employed here. The obtained relationship, however, is worthy of comment, if only to emphasize that the attempt to measure such an attitude was successful. That the predicted relationship between attitude score and 1964 test performance was obtained may be cited as an evidence for the usefulness of the kind of instrument constructed.

A high and significant relationship between the 1947 test performance and 1964 test performance indicates

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that variables associated with 1947 test performance were presumbaly stable and strong and persisted over the 17 year interval. The intervening experiences could predict 1964 performance, but not to the extent as shown by the 1947 test performance.

The findings contain one apparent paradox. The data indicate that females in general had higher grade point average than males. If the logic of the previous discussion of GPA holds, females should have done better on the 1964 tests than the males; but in fact they did not do as well as the males. Is this a contradiction ? Probably not. We have tried to stress in our introduction that whaterver changes occur in test performance are not determined by a single factor, but by several factors in combination. If we consider the data further, we find that out of a total of 96 females in the sample, 61 females are not gainfully employed. Our analysis demonstrates that women who are gainfully employed did significantly better in the tests than those who are not so employed. This again points to the fact that changes in test scores are multiply determined and intervening experiences are important. Working women are presumbly in touch with such experineces as are conducive to the keeping up of the kinds of skills measured by the three test. Incidentally, this is also true of the males. The same logic probably explains the relatively better performance in 1964 of the males as compared with the females. All the 100 males in the sample are working males as compared with 31 out of 96 females. Being employed appears to be one of the situational factors associated with better performance of the males.

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Another alternative explanation may be that the males did better on these tests in 1947 and the tests have some built-in advantage for the males. It is true of the Quantitative Thinking Test that the males did better than the females in 1947; but this is not true of the other two tests. In these two test, in 1947 the females did better than the males.

A finding of the present study, consistent with most recent work, was that gain score could not be predicted by the predictors we considered. This in line with the literature on gain score analysis. It is very difficult to predict gain scores, because of their limited range. It is also possible that we have not tapped the variables which could have predicted the gain scores.

These then are some of the possible explanations for our findings. The stress of the preferred interpretation has been that the demonstrated gains are real and potential artifacts are to be considered. It is possible that the subjects were more motivated to do well on the tests in 1947 than they were in 1947, since the subjects are functioning adults having the competitive tendency to do well in whatever task they face. Or, the the instructions designed to motivate the subjcts may be more test-oriented now than they were before. Importance of empirical research being dicussed off and or in different media of communication might have prompted the subjects to take present research, or for that matter, any empirical research more seriously. There is, however, no way of assessing this possibility.

Generalization of the findings of this study must be made with some caution. The results may be peculiar to the kinds of tests administered, and the finding may apply only to the kinds of populations the author had access to. It may be recalled that the samples were both drawn from

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midwestern cities of th U. S. A. having populations of 90,000 or over. We do not know whether these findings will hold good in case of smaller cities or towns, or for other regions of the United States, although there seems to be no good reason why they should not.

Wiih these reservations in mind, it may be concluded that :

(1) There is no decline of certain abilities or skills with advancing age in adulthood, at least up to 34 years of age.

(2) The initial test scores are excellent predictors of the future performance along with certain variables reflecting intervening experiences. Some other initial carateristics of the individuals, e.g., high school grade point average, also predicts performance.

(3) Males and females perform differentially on the kinds of tests readministered in this study; one possible explanation involved differential intervening experiences.

(4) Attitude towards intellectual activities, itself predicted in part by the 1947 test performance, is also a good predictor of 1964 perfromance.

It will be interesting to see how subjects perform 5 or 10 years from now. Further retesting might answer many questions which have not been answered here, e.g., peak years of performance.

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DEVELOPMENT OF A BENGALI VERSION OF CASSEL'S TEST OF SOCIAL INSIGHT

Hamida Akhtar Begum and
Ishrat Perween

Social insight is an index of adjustment. It is generally regarded as a criterion for judging one's capacity to adjust or to live a normal social life. It is concerned with the mode of reaction the individual exhibits in resolving interpersonal or social problems.*

In view of its importance, psychologists have heen interested in the assessment of social insight by means of some personality or non-projective inventory. The most wellknown and direct kind of assessment procedure for measuring social insight is "The Test of Social Insight" (TSI), developed by Cassel (1959).

TSI was developed and standardized in the United States. Both of its Youth and adult versions were found to be highly reliable and valid in measuring social insight. The reliability measures included split-half technique and test-retest method and the measures of validity included face validity, concurrent validity, content validity and status validity (Schneiderman, 1959). A number of studies undertaken to determine validity ensured that TSI is a valid measure for social insight. It yields a Total Score which is indicative of the overall social insight and five Part Scores that are indicative of five modes viz.,

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Withdrawal, Passivity, Cooperation, Competition, And Aggression.

In Bangladesh, the necessity for assessing social insight can hardly be exaggerated. Since there is no instrument available for measuring this phenomenon, an attempt was made in this study to develop a Bengali version of the TSI. Such instrument would enable us to measure social insight of the people of this country and investigate the factors contributing to their social insight. The knowledge and understanding of the social insight may lead to adopt adequate measures in improving or restoring it.

The authors, therefore, attempted to develop a Bengali version of the Adult edition of Cassel's TSI. The primary objectives were (a) translation and adaptation of the items of TSI, (b) testing reliability and (c) measuring validity of the Bengali version of TSI.

Methods

Before describing the steps undertaken in the adaptation of items and assessment of reliability and validity of the Test of Social Insight (TSI), let us give a brief description of this instrument.

Description of TSI

The TSI contains 60 multiple choice items, each having 5 alternatives. Each alternative offers one of the following modes of resolution of the problem expressed in the items- Withdrawal, Passivity, Co-operativeness, Competitiveness and Aggressiveness. The characteristic pattern of the individual is determined from the frequency of response chosen. Definition of the modes are cited in the following example of a test item :

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"Question : " You approach a person of the opposite sex whom you mistook to be a new friend. After several minutes of conversation you discover your error. What do you do?"

Withdrawal: the individual avoids or escapes by leaving the social problem area and chooses the response alternative—"apologise and walk away".

Passivity : the individual remains in the social problem area but is passive, choosing not to participate in the solution of the problem and chooses the response alternative—" stop talking, and smile in a friendly way".

Co-operation : the individual initiates an active and positive endeavour directed at the solution on the problem and chooses the response alternative—"apologise and introduce yourself".

Competition : the individual engages in activity that elicits the attention of others. he attempts to excel or outdo others as a means of dealing with the social problem and chooses the response—"insist that you recall the person, and try to remember from where".

Aggression : the individual makes little effort toward the problem and is primarily concerned with expressed hostility or strong emotional feeling in direct response to the problem and chooses the response"scold yourself for the mistake".

The social problems covered in the 60 items fall into four major sphere of typical life drama. The areas are : home and family relations, authority figures and social agencies, play and vocational interests. Scoring of TSI is done by hand with the help of five stencils provided to determine 5 part scores. The total score is computed from the last three part scores i.e. co-operativeness, competitiveness and aggressiveness (Cassel, 1959).

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Translation and Adaptation of the TSI (Adult edition)

In developing the Bengali version of the test, the items were first translated into Bengali. While doing this it was felt that many items of TSI are not applicable to Bangladeshi culture and as such, they require change. Besides, some items were unfamiliar and difficult. Such items, e.g., church, dance party, skirt blouse, hoodlum, and American dishes, were changed. These items were identified on the basis of a group of students, (15) reported difficulties in a tryout of the test. Following are a few examples of changes: Original item: You overhear a female teen-age ' hoodlum' swearing at the wife of the church pastor. As the mother of another teen- girl, what do you do?

Changed item: You overhear a female teen-age girl calling insults at the wife of a respectable and pious person. As the mother of another teen-age girl, what do you do?

Original item: The school Principal has called you to say that your teen-age boy is playing 'hookie' for the third day this week. What do you do?

Changed item: The school Principal has called you to say that your teen-age boy is gambling twice or thrice a week. What do you do?

In order to examine the reliability of this translation and adaptation, 20 students (12 males and 8 females) were administered both English and Bengali versions of the test. A week later, the same students were administered the version of the TSI to which they had not responded before. The two sets of scores yielded a high positive correlation (·83) which indicated that the adaptation and translation of TSI was quite satisfactory.

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Testing Reliability of the Bengali version of TSI

For determining the reliability of the Bengali version of TSI both the split-half technique and test-retest method were used. The sample for split-half reliability consisted of 100 respondents (50 males and 50 females) from different occupational groups. Their age ranged from 20 to 30 years and their educational level varied from S.S.C to post-graduation. In case of test-retest method, the sample consisted of 60 students (30 males and 30 females) from university and college levels. Their age ranged from 20 to 25 years.

The procedure followed in administering the test was a standard one as prescribed in the mannual of TSI. There was no time limit for the completion of the questionnaire. On the average it took one hour to complete it. In test-retest method, each respondent was administered the test twice at an interval of one month.

Testing Validity of the Bengali Version of TSI

The validity of the Bengali version of TSI was tested against two external criteria in two different studies.

Study 1 : Comparison of Neurotic and Normal Adults

Hypothesizing that neurotic adults would markedly differ in their social insight from normal adults, a sample of 45 neurotic (25 males and 20 females) and 60 normal adults were administered the TSI. The neurotic sample was drawn randomly from Dhaka Medical College Hospital. They were of 20 to 35 years of age. The normal sample was drawn from various occupational groups. These respondents were also the same age-group.

Standard procedure was followed with normal adults. But for the neurotics the procedure was somewhat

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changed as they frequently showed lack of co-operation. The investigator had to explain some of the items and in some cases she had to write the respondent's responses. However, the investigator tried her best to maintain objectively in explaining the statements and recording the answers. The neurotics took about $2\frac{1}{2}$ hours to complete the test.

Study II: Comparison of Prisoners and Normal Adults

Hypothesizing that atypical persons like prisoners would differ from normal persons , a sample of 50 non-political prisoners (25 males and 25 females) and 60 normal adults (30 males and 30 females) were administered TSI. The prisoners were randomly selected from among non-political prisoners of Dhaka Central Jail and the normal sample was drawn from various occupational groups. Age of both the groups ranged from 20 to 35 years.

Procedures followed in this study parallelled the previous study. Some of the prisoners liked the investigator to record their answers and explain the items. Average time taken by the prisoners was $1\frac{1}{2}$ hours as against 1 hour taken by normal respondents to complete the test.

Results

Reliability of TSI (Bengali verison)

Reliability of the Bengali version of TSI was determined by employing split-half technique and test-retest method on the scores obtained from two samples, one consisting of 100 and another consisting of 60 respondents, respectively. The results are shown in Table 1 and 2.

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Table 1

Split-half (odd- even) Reliability Coefficients of TSI.

Variables	*Correlation coefficient*
Total score	.83
Withdrawal	.71
Passivity	.43
Co-operation	.69
Competition	.42
Aggression	.57

Table 2

Test-Retest Reliability TSI.

Variables	*Correlation coefficient*
Total score	.88
Withdrawal	.67
Passivity	.59
Co-operation	.74
Competition	.80
Aggression	.46

The tables indicate that both measures of reliability for total scores, indicating overall social insight, were highly significant (P<.001). The correlation coefficients for the part scores were also positive and significant. All of these positive and significant correlation coefficients indicated that the test produced consistent results or in other words, the TSI was reliable.

Validity of TSI (Bengali version)

Validity of the Bengali version of TSI was tested in two studies in which TSI scores of normal samples were compared with those of abnormal (neurotic) and a typical (prisoners) samples.

Study I: Comparion of Neurotic and Normal Samples

In the first study, TSI Scores of 45 neurotic patients were compared with those of 60 normal adults. The results of t- tests applied to these data are shown in Table 3.

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Table 3

Results of t- tests for TSI Total and Part Scores of Normal and Neurotic Adults.

Variables	*t*
Total score	23.87*
Withdrawal	11.67*
Passivity	1.52
Co-operation	11.81*
Competition	8.63*
Aggression	18.13*

*P<.01

The Table shows that the difference between the two groups was significant in all the variables except Passivity. Mean scores of the two groups are graphically presented in Figure 1.

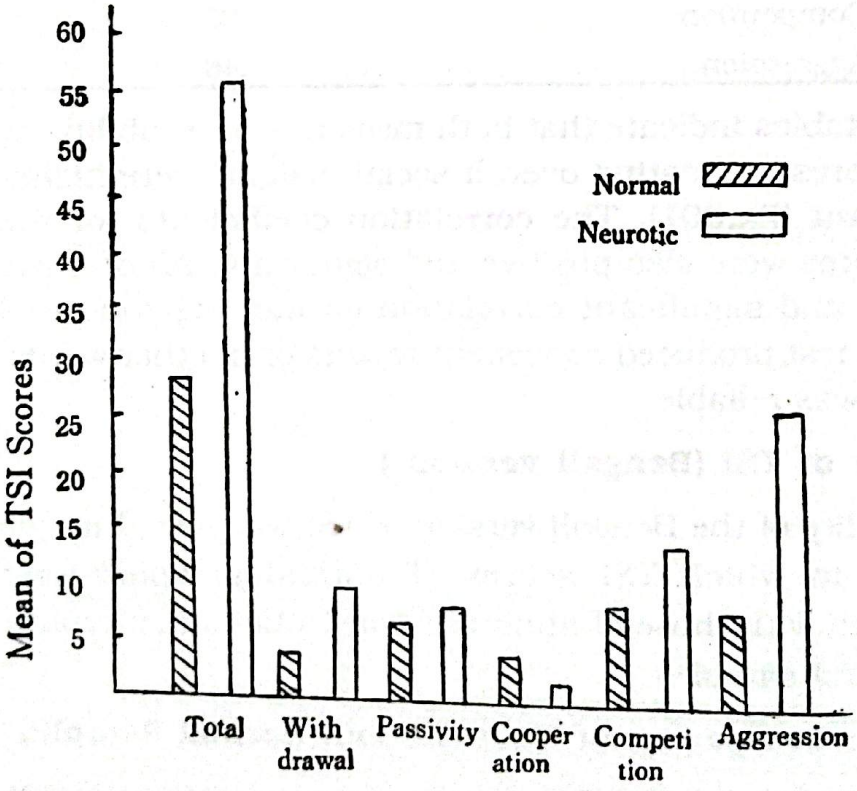

Fig. 1. Mean Scores of Normal and Neurotic adults on TSI.

Study II: Comparison of Prisoner and Normal Samples

The second study involved a camparison of 60 normal and 50 prisoners. Results of t-tests of applied to these data are presented in Table 4

Table 4

Results of t-tests forTSI Total and Part Scores of Normal and Prisoner Samples.

Variables	*t*
Total score	27.63***
Withdrawal	2.26**
Passivity	2.08**
Co-operation	1.68*
Competition	1.73*
Aggression	2.95**

*p<.10 **p<.05 ***p<.01

The Table indicates that there was significant differences in TSI scores of the prisoners and normal adults. Although the level of significance for Cooperation and Competition was. 10, the results indicated that the test can differentiate between normal and atypical groups

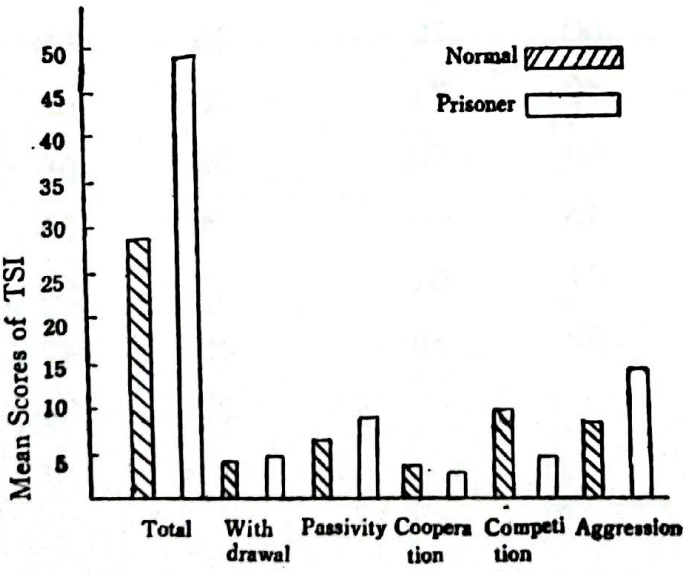

Fig. 2 Mean Scores of Normals and Prisoners on TSI.

of individuals. In other words, the results of this study showed that TSI is a valid measure. The mean TSI scores of the two groups are plotted in Figure 2.

For the purpose of interpreting the raw scores of TSI, T-scores were calculated for the total as well as part scores. Tables 5 to 10 show the T- scores for total and part scores of normal, neurotic and prisoner samples.

Table 5

T- scores for Total Scores of Normal, Teurotic and Prisoner Groups on TSI.

Normal		Neurotic		Prisoner	
Raw score	T score	Raw score	T score	Raw score	T score
39	63	59	82	52	74
38	59	57	79	50	73
36	54	56	78	47	70
35	51	52	74	46	69
34	50	50	72	45	68
33	48	49	71	43	65
31	47	46	69	39	58
29	44	45	66	38	59
28	39	41	61	34	53
27	38	39	58	32	47
26	34			29	34
24	31				
23	30				
21	28				

Table 6

T-scores for Withdrawal Mode of Formal, Neurotic and Prisoner Groups on TSI.

Normal		Neurotic		Prisoner	
Raw score	T score	Raw score	T score	Raw score	T score
13	63	21	80	18	76
12	60	20	77	15	67
11	53	18	74	14	64
9	48	17	72	13	62
8	47	15	67	11	60
7	46	14	64	10	57
6	45	12	61	9	54
4	38	11	58	8	45
2	29	9	55	6	41
1	27			5	38
				4	35

Table 7

T- scores for Passivity of Normal, Neurotic and Prisoner Groups on TSI.

Normal		Neurotic		Prisoner	
Raw score	T score	Raw score	T score	Raw score	T score
13	61	15	63	17	65
11	58	12	60	13	62
10	55	10	58	12	60
9	54	9	57	10	57
8	52	8	53	9	74
6	48	5	46	8	53
5	45	4	39	7	50
3	41	2	35	6	43
2	34			4	41
1	26			3	39
				2	38

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Table 8

T- scores for Co-op-eration of Normal, Neurotic and Prisoner Groups on TSI.

Normal		Neurotic		Prisoner	
Raw score	T score	Raw score	T score	Raw score	T score
38	72	16	43	28	69
35	71	13	38	25	66
31	68	12	37	22	61
28	66	10	31	19	57
27	63	7	28	18	54
24	59	6	25	16	49
22	55	5	22	12	40
18	51	4	21	10	38
17	47			9	36
15	44			7	32
14	40				
11	37				

Table 9

T-scores for Competition of Normal, Neurotic and Prisoner Groups on TSI.

Normal		Neurotic		Prisoner	
Raw score	T score	Raw score	T score	Raw score	T score
14	68	18	84	12	64
11	65	17	81	11	63
10	54	16	78	10	57
9	49	14	74	9	56
8	45	13	69	7	52
7	44	11	63	6	47
5	41	9	58	5	44
4	39	6	52	2	38
3	36				

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Table 10

T-scores for Aggression of Normal, Neurotic and Prisoner Groups on TSI

Normal		Neurotic		Prisoner	
Raw score	T score	Raw score	T score	Raw score	T score
12	64	21	80	17	72
10	59	19	77	16	69
9	57	16	76	10	66
8	56	14	74	9	61
6	50	13	71	8	57
4	43	10	69	7	55
3	42	8	64	6	49
2	37	7	63	5	44
		6	55	4	37

According to the norms of the original TSI, developed in U.S.A, T- scores for total scores below 40 reflect above average social insight, those between 40 and 60 indicate the normal range, and those above 60 indicate below average or poor social insight. For part scores T-scores above 60 are considered to suggest excessive tendencies for any of the modes concerned, those between 40 and lower indicate psycho-social immaturity or inadequacy of the mode and T-scores between 40 and 60 indicate the normal range. Applying these criteria to the T-scores of the present study, it is found that the neurotic sample was extermely withdrawn, competitive and overly aggressive, while they were very little cooperative. They also tended to be more passive. Similarly, the prisoners were found to be psycho-socially immature, passive, less coooperative and more aggressive than the normal group. T-scores for total scores indicate that the normal sample had above average social insight while the neurotic and prisoner groups had below average or poor social insight.

Discussion

The present study attempted to develop a Bengali version of the Test of Social Insight (TSI), Adult form, for being used in Bangladesh. For this, the test was translated into Bengali with adaptation of items to suit Bangladeshi people. Reliability of this adapted TSI was tested in two studies by split-half technique and test-retest method. The reliability coefficients for total scores (indicating overall social insight) were highly significant. The correlation coefficients for part scores were also statistically significant. In other words, the results of the studies indicated that the Bengali version of TSI is a reliable measure of social insight.

In an attempt to test the validity of the Bengali TSI, criterion oriented validity was assessed in two studies. In Study I, TSI scores of neurotic patients were compared with those of normal persons. As expected, the overall social insight of the neurotics was found to be poorer than that of normal persons. Normal adults were found to be less withdrawn, more cooperative, less competitive and less aggressive than the neurotics. In general, the results indicated that the test can differentiate between the two groups who are markedly different in their characteristics.

In Study II, TSI scores of prisoners were compared with those of normal adults. The results of this study also showed that the prisoners had significantly poorer social insight than the normal adults. Furthermore, the prisoners were found to be more withdrawn, less cooperative and competitive, more passive and aggressive than the normal group. These findings strengthened the implication of the previous study that the Bengali TSI can differentiate between groups of people who are markedly different in their characteristics. In other words, the findings indicated

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that the adapted TSI is a valid instrument for assessing social insight.

The adapted TSI, however, lacks one of the characteristics of a standardized test i.e, it does not have national norms for interpreting the raw scores. In this study an attempt has been made to develop a working norm by computing T-scores for TSI scores of the three groups of subjects—normal, neurotic and prisoners. However, the samples were not quite large. The authors, therefore, recommend to undertake studies aimed at developing norms with larger representative samples. Further studies may also be undertaken to test different kinds of validity of this test besides criterion validity. It is hoped that such studies would help developing this adapted TSI as a more scientific tool for measuring social insight which would be of immense help to the counsellors, educators, psychiatrists and psychologists involved in the task of diagnosis and research.

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DEVELOPMENT OF A SCALE FOR FEMALE ROLE PERCEPTION

Qazi shamsuddin Md. Ilyas And **Sultana S. Zaman**

Each culture approves certain work tasks, activities and personality characteristics appropriate for males and others appropriate for females. This normative conception of appropriate behavior for males and females is defined as "Sex Role" or "Male-Female Role". Society's expectation about appropriate behavior of male and female gives rise to a set of attitudes which conform more or less to the expectation of its members. These sets of attitudes are defined as the Sex Role or Male-Female Role attitude. When these attitudes are related to the normative conception of appropriate behavior of females, they are defined as "female role attitude and responses related to these role attitudes are conceptualized as "female role perception" (FRP). Male-Female Role attitude is treated as continuum ranging from "traditional" to "non-traditional". "Traditionalists" see the women's role as being primarily homemaker and childraiser and believe on the fundamental principles of differences between the two sexes and masculine superiority. They assign to men the role of household head and the responsibility for making major decisions. While "nontraditionalist" stress that women should have equal opportunities with men and should share family responsibilities and should be accepted along with men in the work sphere. The fundamental belief of nontraditionalists is that the sexes are equal rather than different, and as a result, should

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play similar rather than different roles. Thus, they believe in role sharing rather than role differentiation between the sexes.

Research into sex role attitude demonstrated that this attitude is related to many aspects of human behavior (Dryer, 1972, Kamarovsky, 1953; Lipman-Blumen, 1972 ; Meier, 1972 ; Pierce, 1960 ; Scanzoni, 1979 ; Steinman and Fox, 1970; Tomeh, 1978; Turner, 1964). Psychologists and Sociologists are also increasingly giving serious attention to the study of sex role attitude especially the female role attitude. They developed numerous scales for measuring this attitude. This article briefly presents descriptive information about some of these scales.

Sex role scales on psychological literature focuses on the concept of Masculinity-Feminity (M-F). The pioneer instrument for measuring masculinity femininity was developed by Terman and Miles (1936). Several "second generation M-F scales" have been developed in the next two decades (Anastasi, 1982). Some of the widely used M-F Scales are included in the strong vocational Interest Blank (Campbell, 1971), the MMPI (Hathaway & Mckinley, 1967), the California Psychological Inventory (Gough, 1957), and the Guildford Zimmerman Temperament Survey (Guilford and Zimmerman, 1956). Although these scales followed the basic procedure of Terman and Miles in item selection and criterion keying, each of these scales differed in content coverage. Moreover, these scales did not correlate very highly with each other However, all the scales were shorter than the Terman-Miles and yielded a single global score.

Both "first and second generation M-F scales" have been criticized on the grounds that these scales concentrate on measuring personality traits and neglect normative prescriptions for the behavior of males and

females. Another limitation of these scales arises from their bipolarity. These M-F Scales treated masculinity and femininity as opposite poles of a single, bipolar scale.

However, for overcoming this limitation, the "third generation M-F Scales" have been developed in the 1970's and later years. The best known examples of the third generation M-F Scales are the Bem Sex-Role Inventory (Bem, 1974, 1977, 1981) and the Personal Attributes Questionnaire by Spence and Helmreich (1978). Hall and Halberstadt (1980) has also developed children's form of the personal attributes questionnaire. These third generation M-F instruments tried to eliminate certain limitations of earlier instruments. First, the items are selected on the basis of judges' ratings of their relative desirability for males and females and the degree of their characterization of each sex in the society. Secondly, masculinity and femininity are treated as independent (i.e. orthogonal) variables, and persons high on both are defined as androgynous (Anastasi, 1982).

Sex-role scales on sociological literature stress on marital and family roles. For example, Motz (1952) developed sole conception Inventory for measuring personal and public attitudes regarding sex roles in the context of marriage and family. For measuring attitudes about appropriate sex roles in a broader context, Kammeyer (1964) developed a normative role attitude scale which measures attitude concerning "the proper kinds of behavior for women in various spheres of life". The Kirkpatrick belief-pattern scale also measured attitude concerning appropriate behavior for females (Kirkpatrick, 1936). However, many of the items in the Kirkpatrick Scale were outdated in content and phraseology. The 21 item Wellesley Role-Orientation Scale (WROS) was an original measure of Sex Role Orientation. This scale consisted of a 7-item "feminine trait" subscale, a 7-item"feminine role activities"

suboscale, and a 7-item "male-oriented careers" sub-scale (Alper, 1973). But this scale failed to correlate with Sex Role measure developed by Rosenkrantz et. al. (1968), Tomeh's (1978) sex role scale was an up-to-date instrument for measuring sex role orientation. This instrument contained three scales, namely "nontraditional wife-mother role" scale "nontraditional husband-father role" scale and "problematic husband-wife alterations role" scale. All the items of this instrument were phrased in nontraditional way. Brogan and Kutner (1976) developed a 36 item Likert-type scale to measure SRO. The scale focused on normative conceptions of appropriate male and female behavior.

However, all the sex sole scales reviewed above were developed in the western countries. But we know that sex roles vary from culture to culture. Moreover, Bangladeshi culture differs from western culture in many respects. Hence, the scale available in western countries are unlikely to be appropriate for measuring sex-role attitude of Bangladesi population. Few studies have been undertaken in Bangladesh for examining female role perception (Zaman, 1978 ; Zaman, Huq, Karim & Ilyas, 1980). But findings of these studies were biased as these studies had used unstandardized questionnaires. The gap of knowledge about sex-role attitude in Bangladesh was largely due to the absence of standardized sex role attitude scale. This concern stimulated the development of the present scale. This scale was developed in two phases. In Phase I item selection was done, while in phase 11 reliability and validity were assessed and norm was constructed.

Description of the Scale

Female Role Perception (FRP) scale consists of two parts. The first part consists of 20 items and the second part contains one two paragraph item. Items of the first part include statements dealing with adult

female role situations, particularly related to family, occupational, and social life. These items are all short statements expressing either a "traditional" or "nontraditional" female-role preference. Traditional preference suggest that a women's family responsibilities are more important than her personal career, Her primary purpose is to be responsible for household and childcare tasks, subordinating her own interests for wellbeing of husband and family. Nontraditional preferences on the other hand, stress equality between sexes, and consider a woman's satisfaction and achievement equally important with those of her husband and family. The response categories for each item in the first part are "yes", "uncertain" and "no", In this part, 8 items are phrased in traditional way and 12 in nontraditional way. For items phrased in traditional way, score zero indicates "yes" response, score 1 "uncertain" and score 2 "no" response. Responses of nontraditionally phrased items are scored in reverse order (i.e..yes=2, uncertain=1, No=0). A subject's total score in the first part is the sum of the numerical values of responses to all 20 items and total sccore can range from 0 to 40 .

The second part consists of two paragraphs. Paragraph "A" states that women should focus attention on home and family affairs, while paragraph "B" states that women should be equal to men in opportunities pay, and types of occupation chosen . Subjects have to respond to this item by selecting one of the five possible answers : "complete agreement with A", "some agreement with A", "some agreement with A and B", "some agreement with B", and "complete agreement with B". Score zero is assigned to the response "complete agreement with A", score 4 to "complete agreement with B" and the remaining responses are given in between scores.

A subject's total score in the scale is the sum of the numerical values of responses to all items of the first part and the second part. Here, low total score

indicates traditional FRP, and high total score represents nontraditional FRP.

Item Selection Study

Method

Subjects.

Twenty women subjects (Rural-10, Urban-10) were selected for pretesting of the initial form of the scale. Beside this, six judges (2 authors, 2 university teachers, and 2 career women) assessed the appropriateness of the items of the initial form. In addition, for item analysis (calculating DP values) 624 working women were sampled from Dhaka Metropolitan city. Age of respondents ranged from 19 to 75 years. Educational qualification ranged from on school education (illiterate) to university education.

Instruments.

After thorough survey of related literature and opnions of experts in this area, items of the initial form of the FRP scale were tentatively constructed. Some items were adapted and translated from two well known original documents "Inventory of Faminine Values" (Steinman & Fox, 1966) and "measurement of sex role perception" (Phillip Dryer, 1972). In addition to these adapted and translated items some new items were also constructed by considering the opinions of working women and housewives. The initial form of the scale contained 45 items. All these items were in Bengali. On the basis of pretesting data, 4 items were dropped from the initial pool. Then, face validity of the remaining 41 items were assessed by judges. Of these items, 35 items were considered appropriate by majority of the judges. There were high degree of disagreement among the judges regarding 6 items. These items were regarded as ambiguous and were dropped. At this stage, 35 items were retained, and Discriminative Power (DP) (Goode & Hatt, 1952) of each of these 35 items were calculated from responses obtained from 624 women. And on the basis of these DP values, 21 items were selected for reliability and validity study. In

addition to the FRP scale, one personal data blank gathered subjects' socioeconomic and demographic informations.

Procedure

Data were collected through interview method. Eight interviewers were given training for administering the personal data blank and the FRP scale to the subjects. Aims and objectives of the study were discussed with the interviewers at the onset of the training. All the interviewers were female. They were Master degree holder of M. Sc. final year students of Psychology or Social Work Department in Dhaka University.

The instruments were administered individually by the interviewers to the selected samples. During pretesting, the subjects were asked to note items which had ambiguous phrasing or similar content. For determining face validity judges were instructed to assess whether each item appears relevant and plausible or not. Then, 35 item scale was administered on 624 women for item analysis. For first 34 items each subject was given the following instructions: "Indicate your opinion of each of the items below by marking one of the three alternative answers — 'Yes'. '?' (uncertain), or 'No' written in the space to the right of each item. There are no right or wrong answers, but simply a measure of your opinions. Please mark one answer which best describe your personal opinion". For last item instructions were as follows : "Women vary a great deal among themselves on what they consider the most appropriate behaviour for women. Please read the two descriptions below and mark one of the five possible responses which describe different degrees of agreement with each of these two descriptions".

Results

Discriminative power (i.e., power of differentiating low scorers from high scorers on FRP scale) of each

item was calculated for salecting items for the final form of the scale. In calculating DP the total score of the scale of subjects were arranged from the lowest to the highest score. Women whose total scores fell above the first Quartile (Q_1) and below third Quartile (Q_3) were selected first. Then DP values of each item was alculated by comparing responses of women above Q_1 with responses of women below Q_3. An example of computing technique of DP value is shown in Table 1.

Results showed that the DP values of items ranged from). 0.12 to 1.31. Items having the DP values 0.60 and above were retained in the final form of the FRP scale. The DP values of these items are presented in table no. 2. It was found that 21 items had DP values 0.60 and above.

Table 1
An Example of Computing Technique of Discriminative Power (DP)

Group	Number	Item no. 2 Score			Weighted Total (Score X Number of checking that score)	Weighted Mean (Weighted total ÷ number of cases)	DP (High Weighted Mean-low Weighted Mean)
		0	1	2			
High	156	31	12	113	238	1.53	0.82
Low	156	92	18	46	110	0.71	

Reliability, Validity, and Norm Construction Study

Method

Subjects

Reliability, validity, and Norm construction study utilized 1480 women subjects. Subjects were selected from urban and rural areas of Bangladesh by stratified

random sampling. The variables of stratification were (i) place of residence (urban/rural), and (ii) work experience (working/nonworking). Strata-wise distribution of subjects were as Follows : urban nonworking - 326, urban working - 422, rural nonworking 520, rural working - 212. Age of respondents ranged from 15 to 76 years with largest number failing in the age category of 20-29 years. Educational qualifications ranged from no School education (illiterate) to university graduation. In addition to these 1480 subjects, four judges (teacher of English-literature-2 and teacher of Bengali literature - 2) examined the equivalence of English translation of the FRP scale constructed in Bengali.

Instrument

Twenty one items selected on the basis of DP values were administered on subjects for reliability, validity, and norm construction. These items included statements dealing with adult female role situations, particularly related to family, occupational, and social life. For each of the firs 20 items, subjects were asked to express their opinion by marking one of the three response alternative - 'yes', 'uncertain', and 'no',. Among these items, 12 were phrased in nontraditional way, and 8 in traditional way. The last item consisted of two paragraph statements one with traditional conservative content and the other with nontraditional-profeminist content. Here subjects had to respond by marking one of the five possible answers. Like item selection study, this study also used one personal data blank for gathering subjects socioeconomic and demographic information.

After determining reliability and validity, and constructing norm, the final form of the FRP scale was transtlated in English by one of the author. Then, Bengali version and English translation of the scale were given to four judges for determining correctness of English translations. Some changes in translations were made according to the suggestions of the judges. English translation of the FRP scale is presented in appendix.

Procedure

In the present study reliability, validity, and normative data were collected from each subjects individually on a single administration of the FRP scale and personal data blank. Like item selection study all the interviewers were female and they were given training before administering the instrument. Instructions to the subjects for administering the personal data blank and the FRP scale. Judges were instructed for examining whether each item of Bengali version and its English translation convey the same meaning or not. The Judges were also requested for giving suggestions for improving the translations.

Results

Reliability

The reliability of the FRP scale was tested by correlating each item with total score fo the scale. Item-to-total correlations are persented in the table no. 2.

The range of item-to-total correlation coefficients (*r* s) were from ·1979 to ·5837 and each of *r* s *w*as significant at ·0001 level.

Validity

The validity of the scale was judged against two external criteria-place of residence and work experience. Significant Point Biseral correlation coefficients r_{pbi} (Ferguson, 1981) of total score of the FRP scale with place of residence [r_{pbi} (1478) = ·301, $p < ·01$] and work experience r_{pbi} (1478) = ·412, $p < ·01$] indicated the validity of the FRP scale.

Norms

Norms of the FRP scale were prepared by calculating Mean *(M)* and Standard Deviation (*SD*) of the FRP score. As the FRP was found to vary according to place of residence, work experience, age, and education; norms were prepared for different sub-groups according to these variables.

Table 2
Female Role Perception (FRP) Scale items with Discriminative Prower (DP) and Item-to-total Correlations (rs)

	Items	DP	r*
(১)	একজন উচ্চাকাঙ্খী এবং দায়িত্ববান স্বামী তার স্ত্রীর চাকুরী করাটা পছন্দ করেন।	.67	.3992
(২)	একজন চাকুরীজীবি মহিলা অন্য একজন সংসারের কাজে নিয়োজিত মহিলার ন্যায় ততটা ভাল মা হতে পারে না।	.82	.3801
(৩)	মাঝে মাঝে আমার মনে হয় যে আমি নিজ ইচ্ছা মতো কাজ করি কারণ অন্যের মতামত আমি একেবারেই গ্রহণ করতে পারি না।	.67	.3916
(৪)	শুধুমাত্র সন্তানের স্বার্থে আত্মত্যাগেই মাতৃত্বের আনন্দ রয়েছে এটাতে আমার সন্দেহ আছে।	.60	.4357
(৫)	আমাকে কেউ আদেশ দিতে চাইলে আমি তার আদেশ যুক্তি ছাড়া মেনে নেই না।	.69	.4111
(৬)	নারী জীবনের প্রধান উদ্দেশ্য হওয়া উচিৎ বিবাহ ও সন্তান।	1.16	.4810
(৭)	যখন আমি কোন দলের সাথে থাকি তখন সাধারণতঃ আমি নিজেই নেতৃত্ব দেই।	.91	.3046
(৮)	মানুষ আমাকে নিয়ে কি ভাবে বা কি মনে করে এ নিয়ে আমার ভয় হয়।	.80	.4497
(৯)	আমি নিজ মতামত খুব জোর গলায় এবং দৃঢ় ভাবেই প্রকাশ করি।	.85	.4908
(১০)	অবিবাহিত মেয়েদের নিজস্ব কৃতকার্যতা প্রয়োজন। কিন্তু বিবাহিত মেয়েদের প্রয়োজন স্বামীর সাফল্য ও কৃতকার্যতা।	.67	.4622

Items	DP	r*
(১১) আমি যা বিশ্বাস করি, বিয়ে করে তা যদি বিসর্জন দিতে হয় তাহলে আমি বিয়ে করতে রাজী নই।	.84	.4055
(১২) বিবাহিত জীবনের সার্থকতা সম্পূর্ণই মেয়েদের উপর নির্ভর করে।	.78	.4439
(১৩) একজন গৃহিনী 'মা' যেমন তার সন্তানদের সাথে সম্পর্ক রেখে চলতে পারেন, একজন চাকুরীজীবি মাও তার সন্তানদের সাথে ঠিক তেমনি সম্পর্ক রেখেই চলতে পারেন।	.79	.4231
(১৪) বিবাহিত জীবনকে স্বার্থক করে তোলার জন্য নারীর ত্যাগ যে পুরুষের চেয়ে অনেক বেশী হওয়া উচিৎ, আমি এটাকে অন্যায় মনে করি।	.60	.1979
(১৫) স্বামীর সাথে মতের মিল না হলে স্বামীকে হার মানানোর চেয়ে নিজেই বেশীর ভাগ সময়ে নতি স্বীকার করা উচিৎ।	.77	.2935
(১৬) আমি বিশ্বাস করি যে একটি মেয়ের বিবাহিত জীবনের আত্মত্যাগই এনে দেয় তার জীবনের সার্থকতা ও পরিতৃপ্তি।	.78	.3980
(১৭) একজন নারীর বহির্জগতের প্রতি আগ্রহ থাকা প্রয়োজন।	.87	.4983
(১৮) বর্তমান কালের মেয়েদের উচিৎ তাদের সন্তানদের পুরুষ ও নারীর সম্পূর্ণ সমান অধিকারে ও সমান স্বাধীনতায় বিশ্বাসী করানো ।	.78	.4682
(১৯) ঘর-সংসারই হলো নারীর প্রকৃত স্থান।	1.03	.5837
(২০) সারা জীবন ধরে অবিরত একই জনের স্নেহ-মমতা বা ভাল-বাসা পাওয়ার চেয়ে বরং আমি সমগ্র জাতির নিকট বিখ্যাত ও জনপ্রিয় হতে চাই।	.91	.3986

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Items	DP	r*
(২১) ক) মেয়েরা পুরুষের চেয়ে ভিন্ন ধরনের,কাজেই পুরুষের সাথে সমান অধিকারের জন্য চাপ না দিয়ে সেটাই তাদের করা উচিৎ যা তারা ভালভাবে করতে পারে। নারী জীবনের কেন্দ্রবিন্দু ঘর-সংসার, সুতরাং সুঁই-সুতা বা শেলাই ও বুনোনের কাজেই তারা নিজেদের নিয়োজিত রাখবে। আর চাকুরী যদি তারা করতেই চায় তাহলে তাদের পেশা হওয়া উচিৎ শিক্ষকতা, সমাজসেবা বা সেবিকাবৃত্তি।	1.31	.5424
(২২) খ) নারী জাতি পুরুষের সাথে যতটা সমান অধিকার পাচ্ছে তার চেয়েও বেশী সমান অধিকার মেয়েদেরকে দেয়া উচিৎ। পুরুষের সবকাজই মেয়েদেরকে করতে দেয়া উচিৎ, পুরুষের সব পেশাতেই মেয়েদের যেতে দেওয়া উচিৎ, এবং সমাপরিমাণ কাজের জন্য সমপরিমাণ বেতন দেয়া উচিৎ। রাজনীতি, ব্যবসা, শিল্পকলা, এবং চাকুরীর ক্ষেত্রে মেয়েদের আরো বেশী নেতৃত্ব থাকা উচিৎ।		

Note : Items that are retained in the Final Form of the (FRP) Scale are presented here.
* Each Correlation coefficient (*r*) was significant at $P < .0001$.

Normative data of the FRP score by place of residence and work status is presented in table no. 3. Normative data indicated that the mean FRP score for urban women (*M*= 25.48) was higher than that of Rural Women (*M*=20.65). Data further revealed that working women had higher Mean FRP score (*M*=26·90) than nonworking wonen (*M*=20·24). However, variability of FRP score of nonworking women (*SD*=9.62). was higher than that of working womwn (*SD*=8·90).

Table 3

Mean and Standard Deviation of the FRP Score by place of Residence and Work Status.

	n	M	SD
Place of residence			
Urban	748	25.48	9.37
Rural	732	20.65	9.79
Urban-Rural Combined	1480	23.17	9.92
Work status			
Working	634	26.90	8.90
Non-working	846	20.24	9.62

Mean and standard deviation of the FRP score according to age and education is presented in Table no. 4. Normative data for different age group showed that women who had age between 20 and 29 years had the highest mean FRP Score (M=24.08). while women with age 50 years and above had the lowest Mean FRP Score (M=19.35). Data on education revealed that the higher the education the more liberal was the FRP.

Table 4

Means and Standard Deviations so FRP Score by Age and Education

	n	M	SD
Age in years			
15-19	197	20.89	10.03
20-29	642	24.08	9.61
30-39	367	23.59	10.12
40-49	182	22.88	10.10
50 and older	92	19.35	8.37
Educational level			
Illiterate	430	18.61	8.27
Class I to class V	356	21.51	9.60
Class VI to class X	179	22.78	9.58
S.S.C./H.S.C.	299	26.76	8.63
Graduation and higher degree	216	29.81	7.71

General Discussion

The results of the item selection study suggest that items of the FRP scale have face validity and high discriminative power. The study done on reliability and validity indicates that the FRP scale is a reliable and valid measure. Normative data reveals that female role perception vary according to residential background, work experience, age, and education.

Data of item selection study indicate that 35 items from the initial pool of 45 items of FRP scale have face validity. The majority of the judges have agreed upon the appropriateness of these items. Data of item selection study further reveal that 21 items have high discriminative power. These can differentiate low scorers of the FRP from that of high scorer.

Data on reliability indicate that the FRP scale is a reliable measure. Highly significant item-to-total correlations suggest the high internal consistency of the FRP scale items. Significant point Biserial correlations of total score of the FRP scale with place of residence and work experience indicate the validity of the FRP scale.

Normative data indicate that urban women are more nontraditional in FRP than rural women. It is also observed that working women are more nontraditional in FRP than nonworking women. Normative data for different age groups, further, suggest that younger women are more liberal in FRP than older women. Normative data on education indicate that the higher the education, the more nontraditional is the FRP. Women with the highest educational qualifications are the most nontraditional, while illiterate women are the most traditional.

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Appendix

English translation of Female Role Perception scale

Part 1

Instructions

Indicate your opinion of each of the items below by marking one of the three alternative answers-'Yes' '?' (uncertain) 'No' written in the space to the right of each item. There are no right or wrong answers, but simply a measure of your opinions. Please mark one answer which best describe your personl opinion.

1. An ambitious and responsible husband likes his wife's outside employment. - 'Yes' '?', 'No'

2. A working mother cannot possibly be as good a mother as one who is engaged in household work. - 'Yes' '?', 'No'
3. I sometimes feel to do everything by myself because I cannot accept others' opinion. - 'Yes' '?', 'No'
4. I am not sure whether joys of motherhood depend only on the sacrifices for children. - 'Yes' '?', 'No'
5. If any body tries to give me orders, I cannot accept that without reason. - 'Yes' '?', 'No'
6. Marriage and children should be the primary purpose in women's life. - 'Yes' '?', 'No'
7. When I am with a group, I usually. become leader - 'Yes' '?', 'No'
8. I worry about what people think about me. - 'Yes' '?', 'No'
9. I express my opinion strongly and firmly. - 'Yes' '?', 'No'
10. A single woman needs her personal success, but a married woman needs her husband's success. - 'Yes' '?', 'No'
11. If I have to give up what I beleve in order to get married, I would not give my consent to that marriage at all. - 'Yes' '?', 'No'
12. The success of marital life depends solely on a women. - 'Yes' '?', 'No'
13. A working mother can maintain the the same type of relationship with her children as a mother who stays at home can. - 'Yes' '?', 'No'
14. It is unfair that women have to sacrifice more than men to make marital life a success. - 'Yes' '?', 'No'
15. If husband and wife disagree, wife should yield to her husband most of the time. - 'Yes' '?', 'No'
16. I believe that a woman's sacrifices for marital life gives her success and satisfaction in life. - 'Yes' '?', 'No'
17. A women should have interest in the outside world. - 'Yes' '?', 'No'
18. It is the responsibility of a modern mother to mark her children believe in equal rights and freedom for both sexes. - 'Yes' '?', 'No'
19. A woman's proper place is her home. - 'Yes' '?', 'No'
20. Instead of receiving costant affection and love of just one man, Ilike to become famous and popular to the nation. - 'Yes' '?', 'No'

Part 11

Instructions

Women vary a great deal among themselves on what they consider the most appropriate behavior for women. Please read the two descriptions below and mark one of the five possible responses which describe different degrees of agreement with each of these two descriptions.

21. (A) As women are different from men, they should not stress equality with men, However, women should stress those things they can do well. Since women's life center around home and family, they should engage themselves in sewing and weaving. If they take any work, their work should be in such fields as teaching, social work, and nursing.

(B) Women should have greater rights than they are getting with men now. The should do the same work as men. They should be equal to men in respect of pay and type of occupation chosen. Women should also given more leadership in politics, business, art-culture, and other occupations.

(i) Complete agreement with 'A',

(ii) Some agreement with 'A',

(iii) Some agreement with 'A', and 'B',

(iv) Some agreement with 'B',

(v) Complete agreement with 'B',

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